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SOUTHEASTERN NEW HAMPSHIRE

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APPENDIXES

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The purpose of this study was to field verify, evaluate current land use impacts and to delineate the size and location of previously determined potential groundwater aquifers throughout Southeastern New Hampshire. The study area consisted of 47 communities within Rockingham County, Strafford County, and a portion of Carroll.

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GROUNDWATER ASSESSMENT STUDY
for
50 COMMUNITIES
in
SOUTHEASTERN NEW HAMPSHIRE



PREPARED FOR
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154
BY
ANDERSON NICHOLS & CO., INC CONCORD, N.H. 03301

SEPTEMBER 1980

APPENDIXES

A. Phase I Study

B. Phase I Sites Eliminated from Further Investigation

C. State of New Hampshire Water Quality Data

D. Water Quality Data for Sites

E. Boring Logs and Seismic Data

F. Seismic Refraction by the Corps of Engineers

G. Boring Log at RO-3 by the Corps of Engineers

H. Selected References

I. Glossary

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APPENDIX A

PHASE I STUDY

REPORT

TO THE

NEW ENGLAND DIVISION
CORPS OF ENGINEERS

ON

PHASE ONE GROUNDWATER SURVEY

FOR

SOUTHEASTERN NEW HAMPSHIRE

SEPTEMBER 1978

TABLE OF CONTENTS

	Page
Introduction	ii
Summary	iii

MAIN REPORT

Background Literature Cited	1
Field Investigation	3
Delineation	5
Field Reports	A-1
Photographs	A-133

PLATES

	Following Page
Study Area	ii

INTRODUCTION

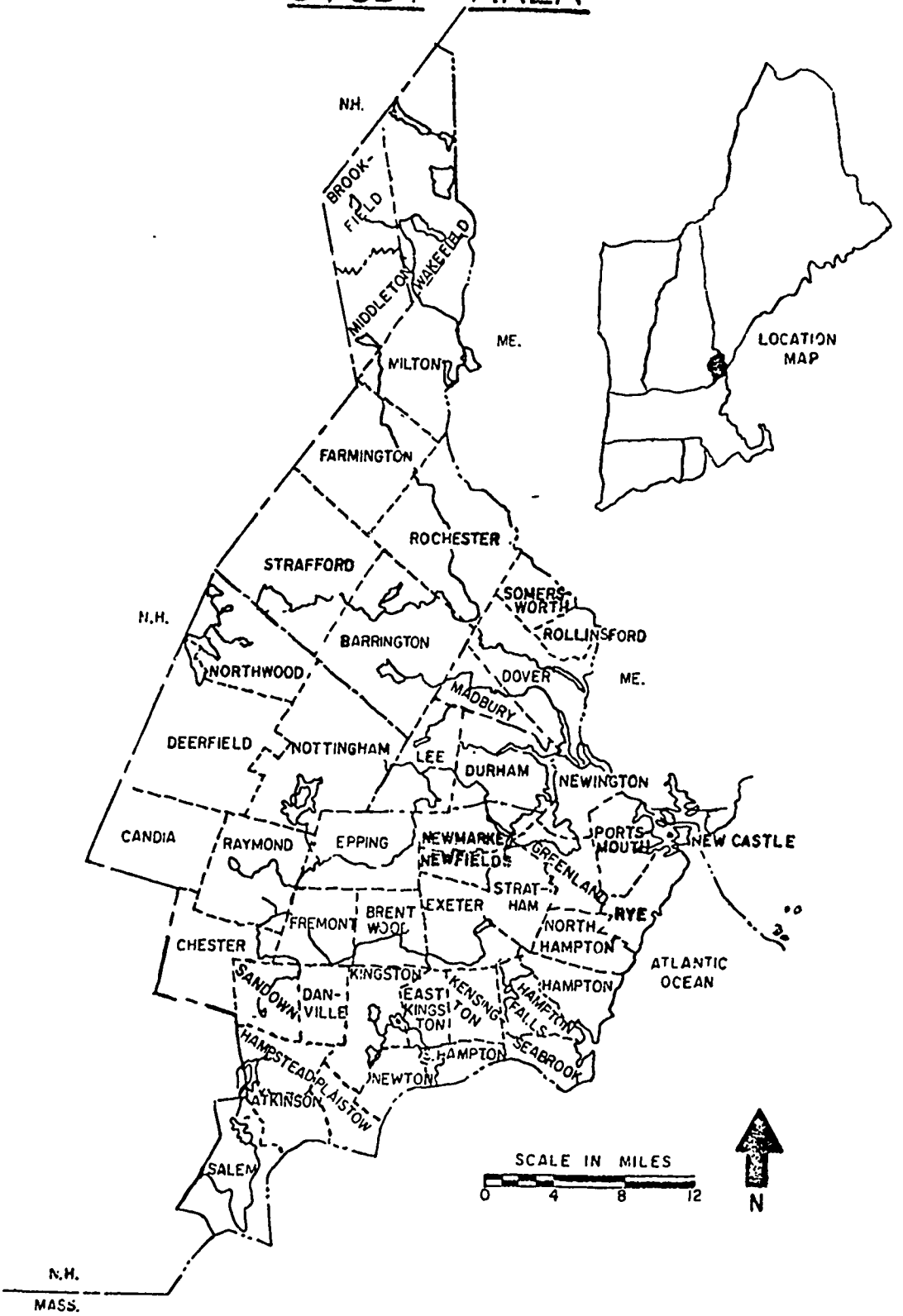
This survey was undertaken at the request of the Department of the Army, New England Division Corps of Engineers, as a part of an integrated study of the water resources of the seacoast region of New Hampshire.

The purpose of this survey was to field verify, evaluate current land use impacts, and to delineate the size and location of previously determined potential groundwater aquifers throughout Southeastern New Hampshire.

The study area consisted of 47 communities within Rockingham County, Strafford County, and a portion of Carroll County. These communities are shown on the accompanying Study Area map.

A brief description of the methodologies used in this survey is contained in the following paragraphs. The results of these field investigations are presented in the Appendices.

STUDY AREA


N.H.
BROOK-FIELD
WAKEFIELD
MIDDLETON
MILTON
ME.
LOCATION MAP
FARMINGTON
ROCHESTER
STRAFFORD
SOMERS-WORTH
N.H.
ROLLINSFORD
BARRINGTON
NORTHWOOD
DOVER
ME.
MADBURY
DEERFIELD
NOTTINGHAM
LEE
DURHAM
NEWINGTON
CANDIA
RAYMOND
EPPING
NEWMARKET
NEWFIELDS
GREENLAND
PORTS-MOUTH
NEW CASTLE
STRAT-HAM
EXETER
BRENT WOOD
FREMONT
RYE
NORTH HAMPTON
CHESTER
ATLANTIC OCEAN
KINGSTON
SANDOWN
DAN-VILLE
EAST KINGS-TON
KENSING-TON
HAMPTON
HAMPTON FALLS
SEABROOK
S. HAMPTON
HAMPSTEAD
PLAISTOW
NEWTON
ATKINSON
SALEM
SCALE IN MILES
0 4 8 12
N
N.H.
MASS.

SUMMARY

In order to evaluate the aquifer potential and verify soil deposits indicated by previous hydrologic and geologic investigations throughout Southeastern New Hampshire, the following investigation was performed. This study consisted of field investigation of 81 potential aquifer sites delineated by the Corps of Engineers. Each site was explored by car to observe the environmental and geological features. For many sites that were accessible, additional exploration was done on foot. The observed features were categorized by a check list system and a final delineation based on these observations was made.

Generally, we found the majority of the sites to have good aquifer potential showing positive agreement with the findings of previous studies. In some cases, recent manmade alterations of sites may limit the final groundwater potential. Poor access, lack of subsurface excavations and surficial till made field observation and identification difficult in some areas.

REPORT

Background Literature Sited

Various studies have been made dealing with surficial deposits, bedrock geology, groundwater availability and other surface features within the project area. Some of these studies were very extensive, incorporating the interpretation of aerial photography and field reconnaissance performed by persons experienced with the geologic and hydrological conditions existing in Southeastern New Hampshire. Due to the quality of these reports and their authors, it was felt that a careful review of this literature would provide valuable insights into the conditions to be encountered during the relatively limited time allocated for our field study.

The following represents a list of the related reports and investigations utilized within our study.

1. Geology and Groundwater Resources of Southeastern New Hampshire by Edward Bradley, U.S. Geological Survey, 1964.

2. Soil Survey of Strafford County, New Hampshire, U.S. Dept. of Agriculture, Soil Conservation Service, 1973.

3. Groundwater Favorability Map of the Salem-Plaistow Area, New Hampshire, by James M. Weigle, U.S. Geological Survey, 1964.

4. Availability of Groundwater in the Piscataqua and Other Coastal River Basins, Southeastern, New Hampshire by John E. Cotton, U.S. Geological Survey, 1977.

5. Groundwater Resources of the Lower Merrimack River Valley, South Central New Hampshire, by James M. Weigle, U.S. Geological Survey, 1968.

6. The Geology of New Hampshire, Part I - Surficial Geology, by James W. Goldthwait, published by N.H. Dept. of Resources & Economic Development, 4th Printing, 1969.

7. The Geology of the Seacoast Region, New Hampshire, by Robert F. Novotny, prepared for the N. H. Dept. of Resources & Economic Development, 1969.

8. The Geology of the Manchester Quadrangle, New Hampshire Bulletin No. 2, by Aluru Sitramadas, published by the N.H. Dept. of Resources & Economic Development. 1966.

9. The Geology of the Haverhill 15' Quadrangle, New Hampshire, Bulletin No. 5, by Daniel Alvin Sundeen, published by the N.H. Dept. of Resources & Economic Development, 1971.

10. The Geology of the Mt. Pawtuckaway Quadrangle, New Hampshire, by Jacob Freedman, published by the N.H. Planning and Development Commission, 1950.

Field Investigation

In order to systematize the field investigation and provide easy reference to individual aquifer sites, an aquifer identification system was developed. This system identifies each aquifer outlined by the Corps of Engineers with two letters followed by a call number. The two letters were taken from the name of the city or town in which the majority of the aquifer was located. Call numbers are integers which increase for a particular city or town in the south-north or west-east directions.

Generally the field reconnaissance involved driving through all roads bounding and included within an area and observing the topographic features, vegetation, surface soil types, geologic formations, surface water and any land alterations which may expose subsurface conditions. All manmade features which might affect the quality of the aquifer or were related to the development of the area were also noted. Attempts were made to drive outside each area to observe features that might define aquifer boundaries. Areas which had limited access were walked and more significance was given to general vegetation and topographic features. Prior to performing the field investigation, a literature review was made to summarize how previous studies had classified each area.

As an aid in organizing these observations, a check list was developed. This list is grouped into two major sections. The first is involved with how previously published investigations defined the area using the literature already cited. For aquifer areas which were not covered within the scope of these reports this section was left blank on the check sheet. The descriptions are presented only to provide general background data and are not meant to constitute a detailed literature investigation.

The second part of the check list is involved with field observations. Generally these observations are grouped into surface features, encountered

deposits, manmade alterations and lastly a conclusion section which attempts to include all additional observations, summarize findings, and when possible, evaluate the potential of individual aquifers. In some areas, similar soil conditions were encountered at two or more adjacent aquifers. In such cases these aquifers were grouped together under one check listing. Due to the limited time available for the field investigation of each aquifer, observations are not always conclusive. This is due in most cases to poor access, surficial till deposits or an absence of subsurface excavations. Generally these listings are only a means of organizing our findings and giving the reader some insight into the aquifer modifications and revisions made on the USGS maps.

The final aquifer delineations shown are our best estimates as to the limits of an aquifer. Due to the typical surficial till layer inherent to the area, specific boundaries are extremely hard, if not impossible, to define. In most cases general geologic "clues" observed in the field were utilized in delineation. Such "clues" include glacial landforms such as drumlins, eskers, and kames, and ledge outcrops or rapid sloping of a terrace to define the outer boundries. Vegetation changes, pine trees and lack of surficial drainage features indicate well draining material, and existing manmade features such as dug wells, cemeteries or municipal wells indicate sandy material with existing groundwater potential. In most of the areas studied, active gravel pits provided an indication of typical subsurface conditions. A further source which provided additional insight was conversations with local residents.

Delineation

The Corps of Engineers provided HH&B with two sets of USGS topographic maps (7.5' and 15' Quadrangle Sheets) covering the study area. One set consisted of 23 unmarked Quad sheets; the other of 18 Quad sheets showing the locations of previously identified potential aquifers.

The marked set of maps was taken into the field and significant topographic, geologic, and environmental observations were noted on them. In addition, any observed manmade features, which could possibly have major effect on groundwater potential, were marked onto the maps, if not already shown. These Field Quad Sheets, along with the previously discussed check lists, were the basis for verifying and/or revising the delineated aquifers.

Using the information obtained during the field investigations, the size and location of each aquifer was delineated onto the clean set of USGS Quad Sheets. The original COE delineation for each aquifer is shown in pencil, as is the aquifer's identification listing of two letters and an integer. Revisions to this delineation are shown in blue. Generally these changes stemmed from field observations, and are discussed in the comments section of the checklist. In some cases, modifications were required to obtain matching delineations between two adjacent Quad Sheets. No modifications were shown to areas for which the delineation was verified or could not be either disputed or confirmed by the field observations. It should be stressed that these delineations are only a "best judgement" based upon a limited field survey, and are not meant to exactly portray the actual limits of an aquifer.

In areas which show indications of possible extensive aquifer type deposits extending away from the site, no specific delineations were made for the extended area. However, these possibilities are noted within the checklist to be studied in later investigations. Possible manmade

limitations of aquifer potential, such as landfills, sewage plants and new residential development are also indicated on the revised maps. Due to the undetermined possible effects of these facilities, no modifications of the aquifer delineation were attempted where such potential manmade limitations occurred.

APPENDIX A

KEY

AQUIFER	QUADRANGLE LOCATION
At-1	Haverhill (7.5' series) Salem Depot
Ba-1	Dover West Mt. Pawtuckaway
Ba-2	Dover West
Ba-3	Mt Pawtuckaway
Ba-4	Mt. Pawtuckaway
Bw-1	Haverhill (15' series)
Bw-2	Mt. Pawtuckaway Haverhill (15' series)
Ca-1	Suncook
Ch-1	Haverhill (15' series)
Da-1	Haverhill (15' series)
Da-2	Haverhill (15' series)
De-1	Mt. Pawtuckaway Suncook
Do-1	Dover East Portsmouth
Do-2	Dover West
Do-3	Dover West
Do-4	Dover West
Do-5	Dover West
Du-1	Dover West Newmarket
EK-1	Haverhill (15' series)
EK-2	Exeter
Ep-1	Mt. Pawtuckaway
Ep-2	Mt Pawtuckaway
Ex-1	Exeter
Fr-1	Haverhill (15' series)
Fr-2	Haverhill (15' series)
Fr-3	Haverhill (15' series) Mt. Pawtuckaway
Fr-4	Mt. Pawtuckaway
Gr-1	Portsmouth
Gr-2	Portsmouth
Hs-1	Haverhill (15' series)
Ha-1	Hampton
Ke-1	Exeter
Ke-2	Exeter
Ki-1	Haverhill (15' series)
Ki-2	Haverhill (15' series)
Ki-3	Haverhill (15' series)
Ki-4	Haverhill (15' series)
Le-1	Newmarket
Le-2	Newmarket
Le-3	Mt. Pawtuckaway
Le-4	Dover West
Le-5	Dover West Mt. Pawtuckaway
Ma-1	Dover West
Ma-2	Dover West

KEY

AQUIFER	QUADRANGLE LOCATION
Ma-3	Dover West
Mi-1	Berwick
Mi-2	Berwick
Mi-3	Berwick Alton
Nf-1	Newmarket
Nf-2	Mt. Pawtuckaway
Nm-1	Newmarket
Nm-2	Newmarket
Ne-1	Haverhill (15' series) Haverhill (7.5' series) Newburyport West
Ne-2	Haverhill (15' series)
NH-1	Hampton
Nw-1	Mt. Pawtuckaway Suncook
No-1	Mt. Pawtuckaway
No-2	Mt. Pawtuckaway
No-3	Mt. Pawtuckaway
Pl-1	Haverhill (7.5' series)
Pl-2	Haverhill (7.5' series)
Pl-3	Haverhill (7.5' series)
Pl-4	Haverhill (7.5' series)
Po-1	Portsmouth
Po-2	Portsmouth
Po-3	Portsmouth

AQUIFER	QUADRANGLE LOCATION
Ra-1	Mt. Pawtuckaway
Ro-1	Dover West
Ro-2	Berwick Alton
Ro-3	Berwick
Ro-4	Berwick
Ry-1	Portsmouth Hampton
Ry-2	Portsmouth Hampton
Sd-1	Haverhill (15' series)
So-1	Berwick Somersworth Dover East Dover West
St-1	Newmarket Exeter
Wa-1	Wolfboro
Wa-2	Newfield Wolfboro
Wa-3	Newfield Wolfboro
Wa-4	Newfield Wolfboro
Wa-5	Wolfboro

LOCATION: *Atkinson, NH*
AQUIFER: *At-1*
DATE: *8-11-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH *Surrounds area East*

c. MARINE d. TILL *Surrounds area West,*

e. MODIFICATIONS

2. SOIL SURVEY *N.A.*

3. GOLDTHWAIT *Majority of general area is isolated ice contact deposits, surrounded by till*

B. POTENTIAL

1. WIEGLE: *Most favorable for Ice contact deposits, favorable for adjacent outwash**

2. COTTON: *N.A.*

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE 2. FILLED IN VALLEY *X*

3. FLAT FLOOD PLAIN 4. HILLS *X*

5. OTHER

B. ELEVATION: *100-110' MSL*

C. VEGETATION:

1. GROUND COVER *Grass*

2. TREES

a. PINES *Majority* b. MIXED SMALL DIAMETER *Some 1-2' diameter*

c. OTHER

D. SURFACE WATER

1. PONDS *(2)* 2. STANDING WATER IN LOW AREAS *some observed*

3. SMALL STREAMS AND BROOKS *1 or 2 small* 4. RIVERS

5. LAKES 6. SWAMPS

7. OTHER

E. APPARENT SURFACE DRAINAGE *Southeast direction to Bruant Brook*

F. PERMEABILITY OF SURFACE MATERIAL *Very good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact observed*

2. OTHER DEPOSITS *Sandy outwash (could also be ice contacts deposits)*

H. BOUNDARY CONDITIONS
1. BEDROCK *Observed on Southwestern fringes*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *X*
3. DEVELOPING SUBDIVISIONS *To west* 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS *X* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Outwash gravel pit out of area to North*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#1 Gravel pit, #2 Surface water in pit, #3 Southeast edge looking north*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area appears to have good potential for aquifer. Actual limits of Aquifer probably extend to North, South and Southeast. Sandy type deposits observed throughout area.*

O. CONTINUATIONS

* *deposits*

LOCATION: *Barrington, NH*
AQUIFER: *Ba-1*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Some in Southeast Corner* b. OUTWASH *X*

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *On edge of Bradley Map: Till to Northeast; marine to Southeast*

2. SOIL SURVEY *Hinckley-Windsor-Saugatuck association--outwash and ice contact type deposits*

3. GOLDTHWAIT *Surficial geology of NH (map)--ice contact and outwash deposits; some till. Geology of Seacoast region, NH, area underlain by metamorphic rock**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Favorable potential for groundwater*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *160-220' MSL*

C. VEGETATION:

1. GROUND COVER *Forested, few cleared areas*

2. TREES

a. PINES *some 2-3' diameter* b. MIXED SMALL DIAMETER *few, at fringes cleared area*

c. OTHER _____

D. SURFACE WATER

1. PONDS *1-2 small, Winkley Pond* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *Mallego Brook*** 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER** *some other small streams; swampy area to Southeast*

E. APPARENT SURFACE DRAINAGE *Toward Mallego Brook*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact/outwash material tan-yellowish brown sand, some stratification; some gravel, small stones*

2. OTHER DEPOSITS *Surface till*

H. BOUNDARY CONDITIONS
1. BEDROCK *To North along Rte 9*
2. SLOPING OFF OF TERRACE *To East towards Mallego Brook*
3. MARSH DEPOSITS *To Southeast*
4. OTHER *Hills to West*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *Few along Rte 125 & 9*
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *1-2 small* 6. HIGHWAYS *Rtes 125 and 9*
7. GRAVEL PITS *Several active* 8. INDUSTRIES
9. FARMS *Few scattered* 10. SHOPPING CENTER
11. OTHER *a few new homes*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#4 Central gravel pit*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Ice contact and outwash material deposits appear to be extensive throughout area. Gravel pit excavations on the order of 30-40' deep observed. Area probably has very good potential as an aquifer. Field observations generally confirm delineation and information from literature. Potential problem with area if aquifer drained by streams and brooks running through it. Overall high rating for this site as a potential groundwater source.*

O. CONTINUATIONS

*(Berwick formation) Geology of Mt. Pawtuckaway Quad, same as above

LOCATION: *Barrington, NH*
AQUIFER: *Ba-2*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH

c. MARINE d. TILL *Some till in Southwest porti*

e. MODIFICATIONS *Till to Southwest; outwash to northwest and southeast, marine to South, North and East*

2. SOIL SURVEY *Hinckley-Windsor-Saugatuck association--outwash and ice contact type deposits*

3. GOLDTHWAIT *Surficial geology of NH (map)--ice contact, outwash, till deposits, drumlin Geology of Seacoast Region, NH (map)--on divide between igneous and**

B. POTENTIAL

1. WIEGLE:

2. COTTON: *Most favorable potential for groundwater; well 60' deep; yield-700 gpm*

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X-Kame terrace* 2. FILLED IN VALLEY

3. FLAT FLOOD PLAIN 4. HILLS

5. OTHER

B. ELEVATION: *200-260' MSL*

C. VEGETATION:

1. GROUND COVER *Forested*

2. TREES

a. PINES *Most of area* b. MIXED SMALL DIAMETER *Around fringes*

c. OTHER

D. SURFACE WATER

1. PONDS 2. STANDING WATER IN LOW AREAS

3. SMALL STREAMS AND BROOKS 4. RIVERS

5. LAKES 6. SWAMPS

7. OTHER *No surface water seen in area; swamp to South, Cocheco River to East,***

E. APPARENT SURFACE DRAINAGE *To swamp and Cocheco River*

F. PERMEABILITY OF SURFACE MATERIAL *Very Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact and outwash material--reddish brown colored fine-coarse sands, gravels, round stones and small boulders; some stratified layers*

2. OTHER DEPOSITS

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Cocheco River to East, Isinglass River to North, swamp to South; hills to West*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES
6. HIGHWAYS
7. GRAVEL PITS *X--extensive, active*
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER *Sand and gravel mining operations (sorting, etc) throughout site*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL
2. LANDFILLS *Dover landfill on Mallego Plains to South of area*
3. NEARBY SALT WATER
4. INDUSTRIES *Junkyard in southern portion of area near swamp*
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#5 Active central sand and gravel pit*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Ice contact and outwash material in this area is quite extensive, of good quality, and fairly thick. Thus this area should be a potentially good aquifer. Area is flat with steep slopes to rivers, and no standing water on surface, so recharge is probably good. Possibility of inducing recharge from Cocheco and Isinglass Rivers. This area appears to have a high potential as a possible groundwater source. Dover Landfill is probably far enough away not to cause pollution problems, but this should be checked out in future studies.*

O. CONTINUATIONS

* *metamorphic rocks*

** *Isinglass to North*

LOCATION: *Barrington, NH*
AQUIFER: *Ba-3, Ba-4**
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered, outwash shown in Barrington to East*

2. SOIL SURVEY *Majority of areas are Hinckley-Windsor-Saugatuck association*

3. GOLDTHWAIT *Outwash area along Isinglass River*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Good potential in general area for both sites*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Hummocky, hills to South*

B. ELEVATION: *200-260' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse grass*

2. TREES

a. PINES *X* b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *On fringes* 4. RIVERS *Isinglass on fringes*

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Toward Isinglass River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact (Possible outwash from river)*

2. OTHER DEPOSITS *Till observed on uphill side to south*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE *To Isinglass River to North*
3. MARSH DEPOSITS *Along river*
4. OTHER *Till on uphill side to South*
5. UNABLE TO DISTINGUISH *Exact outer boundries due to limited access*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Very little development*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor. Hard to determine our own location at site*

N. OTHER OBSERVATIONS & CONCLUSIONS *Both areas are small, isolated Kame or outwash areas. No field indications of area being larger, however, it is possible that they connect to Ba-1 at lower level; Could extend to the West along the river. From what observed in field, area appears to have low potential.*

O. CONTINUATIONS

* *Due to poor access and close proximity these 2 sites were combined.*

LOCATION: *Brentwood, NH*
AQUIFER: *Bw-1 and Bw-2*
DATE: *8-17-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Area surrounded by outwash to north, marine deposits to east and west, and till to south*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Ice contact deposits for entire area*

B. POTENTIAL

1. WIEGLE: *Most favorable within general area and to the south*
2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____
3. FLAT FLOOD PLAIN _____ 4. HILLS *some throughout*
5. OTHER _____

B. ELEVATION: *100-150' MSL*

C. VEGETATION:

1. GROUND COVER *Hilly areas dense*
2. TREES
   a. PINES *X* b. MIXED SMALL DIAMETER *some*
   c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____
3. SMALL STREAMS AND BROOKS *several, small* 4. RIVERS *Exeter River*
5. LAKES _____ 6. SWAMPS _____
7. OTHER *Dudley Brook intersects Bw-1 and Bw-2*

E. APPARENT SURFACE DRAINAGE *Drains to fringe streams and brooks, and Exeter River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact throughout*

2. OTHER DEPOSITS *Till near Pickpocket Road; some apparent outwash observed in gravel pits*

H. BOUNDARY CONDITIONS
1. BEDROCK *None*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS *To North and East*
4. OTHER
5. UNABLE TO DISTINGUISH *Till Northeast of Bw-1*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS *X* 4. HIGHLY POPULATED
5. CEMETERIES *X* 6. HIGHWAYS
7. GRAVEL PITS *Active* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS *Sanitary landfill at eastern section of Bw-1*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good--road layout changed from quad.*

N. OTHER OBSERVATIONS & CONCLUSIONS *Similar deposits were found in both areas and grouped together. Both areas drain to central river, areas are probably connected at a lower level. Ice contact deposits confirmed throughout. Overall area appears to have high aquifer potential.*

O. CONTINUATIONS

LOCATION: *Candia, NH*
AQUIFER: *Ca-1*
DATE: *8-17-78*

I. LITERATURE REVIEW
A. DEPOSITS (PREDOMINANT)
1. BRADLEY
a. ICE CONTACT _____ b. OUTWASH _____
c. MARINE _____ d. TILL _____
e. MODIFICATIONS *Not covered by Bradley Report*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Indicates area as till*

B. POTENTIAL
1. WIEGLE: _____
2. COTTON: *Indicates area where delineated as poor potential, delineates area on his map to west of Candia near Walnut Hill as having favorable groundwater*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY
1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____
3. FLAT FLOOD PLAIN _____ 4. HILLS _____
5. OTHER _____

B. ELEVATION: *420-500' MSL*

C. VEGETATION:
1. GROUND COVER *Mostly forested, some open grassed areas*
2. TREES
a. PINES _____ b. MIXED SMALL DIAMETER _____
c. OTHER *Mixed types of various sizes*

D. SURFACE WATER
1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____
3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____
5. LAKES _____ 6. SWAMPS _____
7. OTHER *None observed--Moose Meadow Brook and Maple Falls Brook around fringe of area*

E. APPARENT SURFACE DRAINAGE *Towards Brooks*

F. PERMEABILITY OF SURFACE MATERIAL *Fair to poor*

G. GEOLOGY
1. PREDOMINATE DEPOSIT *Possible ground morraine till*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK *Observed all along Chester Turnpike within area*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Tower Hill to south; Maple Falls Brook to west, Moose Meadow Brook and swamp to north and east*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Area has completely changed from that shown as USGS Quad--very difficult to get to Chester Turnpike; roads very bad.*

N. OTHER OBSERVATIONS & CONCLUSIONS *Numerous ledge outcrops were observed within area. Surface soils were composed of till material. No potential aquifer materials were observed in the area. The area probably consists of till material with a shallow depth to bedrock. It is highly unlikely that any sustantial groundwater yield could be obtained at this location without going into the bedrock. This area should not be considered as a potential aquifer. Cotton shows possible aquifer to the northeast near Walnut hill which he indicates as having a favorable groundwater potential.*

O. CONTINUATIONS

* *potential*

LOCATION: *Chester, NH*
AQUIFER: *Ch-1*
DATE: *8-17-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Indicates a number of ice contact and outwash deposits exist in this area. Geology of Haverhill 15' Quad, Southeast NH--area underlain by metamorphic**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicates area as most favorable potential as a groundwater source*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Hummocky*

B. ELEVATION: *200-220' MSL*

C. VEGETATION:

1. GROUND COVER *Forested*

2. TREES

a. PINES *Mostly 1-2' diameter* b. MIXED SMALL DIAMETER _____

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *1-2 small, flow to river* 4. RIVERS *Exeter River along***

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Ponds and streams to west, swamps to north and south*

E. APPARENT SURFACE DRAINAGE *Toward Exeter River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact and outwash deposits: yellowish fine-medium sands, some small stones for outwash; fine-coarse sands, gravel and rounded stones and cobbles for ice contact.*

2. OTHER DEPOSITS *Possible ground morraine till*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Exeter River to east, Mardens Hill to southwest; swamps to north and south*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *1-2 along Rte 108*
3. DEVELOPING SUBDIVISIONS *X-several* 4. HIGHLY POPULATED
5. CEMETERIES *1 small one* 6. HIGHWAYS *Rte 108*
7. GRAVEL PITS *Some active* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS *Chester Town Dump to northwest of area*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#6 Gravel (sand) pit off of Rte 108, looking south at outwash deposits*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area appears to be made up of outwash deposits with some ice contact material. A pond now exists on the Exeter River near the southeast corner of the area, indicating a relatively high groundwater table. Surrounding streams and swampy areas tend to confirm this. Coupled with the extensive clean sand and gravel deposits within the area, it appears this could be a good to very good potential aquifer. The aquifer potential of this site would be limited if these deposits are thin, and by possible pollution from the Chester Town dump to the northwest.*

O. CONTINUATIONS

* *rock (Eliot formation)*

** *east fringe*

LOCATION: *Danville, NH*
AQUIFER: *Da-1 and Da-2*
DATE: *8-18-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *On fringe of Bradley mapping; till to North and East; swamp deposits to South.*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Surficial geology of NH (map)--scattered ice contact deposits surrounded by till material, outwash deposit to Southwest of Long Pond*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER _____

B. ELEVATION: *160-200' MSL*

C. VEGETATION:

1. GROUND COVER *Forested, some open grassed area*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER _____

c. OTHER *Mixed types of various sizes*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Long Pond to Northeast; swampy areas to Southeast*

E. APPARENT SURFACE DRAINAGE *Towards streams, swamps and pond to North, East and South*

F. PERMEABILITY OF SURFACE MATERIAL *Fair*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Surface till--brown-yellowish material consisting of silt, fine-medium sand, gravel, angular and rounded stones.*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK *Ledge outcrops throughout area along Pine and Long Pond Roads*
2. SLOPING OFF OF TERRACE *X*
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Some new homes being built*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *No excavations in either area greater than 2-3' deep. No evidence of possible ice contact or outwash deposits observed at ground surface. A number of ledge outcrops observed in both areas. Any possible ice contact or outwash deposits are probably small and scattered. Evaluation of groundwater potential difficult, but probably low.*

O. CONTINUATIONS

LOCATION: *Deerfield, NH*
AQUIFER: *De-1*
DATE: *8-17-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Indicates a series of ice contact deposits with 1-2 outwash deposits within area. Geology of Mt. Pawtuckaway Quad.--area underlain by igneous rock**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicates area has favorable to most favorable potential as a groundwater source. Boring log for site along Rte 101 just south of area indicates sand and***

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *240-280' MSL*

C. VEGETATION:

1. GROUND COVER *Tree covered*

2. TREES

a. PINES *Mostly 1-2' diameter* b. MIXED SMALL DIAMETER *few*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *some small tribs. to*** 4. RIVERS *Lamprey River*

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *To Lamprey River*

F. PERMEABILITY OF SURFACE MATERIAL *Good.*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *ice contact deposits--medium-coarse sands, gravels, well rounded stones up to 1-1½' diameter; tan-buff colored*

2. OTHER DEPOSITS *Outwash material to east of Deerfield fairgrounds, stratified layers, fine-medium sands yellow-tan colored.*

H. BOUNDARY CONDITIONS
1. BEDROCK *To north and southeast of area*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Hills and ridges to south, east and west*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES *Few along Rte 107*
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS *Rte 43, 107*
7. GRAVEL PITS *Numerous, active* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Deerfield Fairgrounds*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS *Town dump and landfill along Rte 43 just south of Deerfield Fairgrounds*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#7 just south of Deerfield fairgrounds, at gravel pit and dump showing ice contact deposits; #8 to east of fairgrounds looking west, showing*****

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Field observations tend to confirm literature, especially Goldthwait. Area composed of good sized ice contact deposits with some outwash. With the runoff from the surrounding hills and Lamprey River which runs through area, the site should have good recharge potential. Overall area should be good to very good aquifer. Potential of aquifer may be limited by Deerfield Fairgrounds and nearby dump/landfill. Delineation has been modified to include the area to the east of the Fairgrounds, and to the north of Critchett Road in Raymond as these areas appeared to be extensive outwash deposits.*

O. CONTINUATIONS

* *(Microcline granite) with some pegnetite outcrops.*

** *gravel thickness of 42'*

*** *Lamprey.*

**** *outwash deposits*

LOCATION: *Dover, NH*
AQUIFER: *Do-1*
DATE: *8-24-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE *Throughout* d. TILL _____

e. MODIFICATIONS *Long narrow strip of ice contact extends northward of site about 2 miles*

2. SOIL SURVEY *Hollis-Charlton-Buxton-Scantic (HaB, DeA)*

3. GOLDTHWAIT *Similar to Bradley representation (Wd type, EaB and ScB throughout)*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Most favorable as shown*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Fairly flat plain sloping to rivers on East and West*

B. ELEVATION: *20-40' MSL*

C. VEGETATION:

1. GROUND COVER *Grass*

2. TREES

a. PINES *X* b. MIXED SMALL DIAMETER *X*

c. OTHER *Willows*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS *X*

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Rivers border on both sides*

E. APPARENT SURFACE DRAINAGE *East and west to rivers*

F. PERMEABILITY OF SURFACE MATERIAL *Fair*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Marine type in Corps of Engineers area, signs of sandy (possible ice contact) further North*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS

1. BEDROCK
2. SLOPING OFF OF TERRACE *To river to East and West*
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES

1. SPARSE SINGLE DWELLINGS *X*
2. SMALL BUSINESSES *some*
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES *To North*
6. HIGHWAYS
7. GRAVEL PITS
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER *State recreation area or Southern point, many small camp type homes throughout area*

J. POLLUTION SOURCES

1. INDIVIDUAL SEWAGE DISPOSAL *Construction of Pump Station and laterals observed*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES *From Dover to the North*
5. OTHER

K. ADDITIONAL LOCAL INPUT *Town in process of installing pump station. Boring log indicates about 34' of blue silty clay**

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area has marine deposits underlayed by permeable till (ice contact) layer under artesian pressure. Many successful wells are already drilled in area. To North of site, extensive pines and several cemeteries indicate possible deeper ice contact deposits (as in Literature) area would seem to have good potential. Pollution from Town or Dover and Piscataque and Bellamy Rivers may be limiting factor*

O. CONTINUATIONS

* *Underlayed by about 6' till layer to bedrock, till layer has high pressure requiring wells to control sheeted pump station excavation*

LOCATION: *Dover, NH*
AQUIFER: *Do-2*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH

c. MARINE d. TILL

e. MODIFICATIONS

2. SOIL SURVEY *Hinckley-Windsor-Saugatuck Association surrounded by Hollis-Charlton-Buxton-Scantic Association*

3. GOLDTHWAIT *Ice contact throughout*

B. POTENTIAL

1. WIEGLE:

2. COTTON: *High potential throughout*

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY

3. FLAT FLOOD PLAIN 4. HILLS

5. OTHER *Terrace is narrow, sloping off to North and South*

B. ELEVATION: *100-195' MSL*

C. VEGETATION:

1. GROUND COVER *Forest type*

2. TREES

a. PINES *Throughout* b. MIXED SMALL DIAMETER

c. OTHER

D. SURFACE WATER

1. PONDS 2. STANDING WATER IN LOW AREAS

3. SMALL STREAMS AND BROOKS 4. RIVERS

5. LAKES 6. SWAMPS

7. OTHER *None observed*

E. APPARENT SURFACE DRAINAGE *To streams and brooks surrounding site*

F. PERMEABILITY OF SURFACE MATERIAL *Very good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Thick ice contact deposits observed*

2. OTHER DEPOSITS

H. BOUNDARY CONDITIONS
1. BEDROCK *To Southeast*
2. SLOPING OFF OF TERRACE *Throughout*
3. MARSH DEPOSITS
4. OTHER *Sandy material and pines observed extended area to East*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *To west* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS *in eastern portion* 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS *Active concrete & shreding* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Area built up in eastern portion*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS *Shreding plant*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER *Dover to Northeast*

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#9 & #10 scrap metal shreding plant--#11 deep excavation at S & G pit*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *This area appears to be an Esker. Extensive gravel pits are located in central portion. Wells would probably have to be very deep to reach groundwater table in central portion. Eastern part of site appears to be rapidly developing suburb of Dover. Good confirmation of ice contact deposits observed. Area appears to have very good aquifer potential.*

O. CONTINUATIONS

* *Plant*

LOCATION: *Dover, NH*
AQUIFER: *Do-3*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout area* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Surrounded by marine deposits*

2. SOIL SURVEY *Hollis- Charlton-Buxton-Scantic Association*

3. GOLDTHWAIT *Ice contact deposits for area as shown, area appears to be southern tip of extensive ice contact deposits north of site at Sommersworth*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Low potential, till area*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS *X*

5. OTHER _____

B. ELEVATION: *40-120' MSL*

C. VEGETATION:

1. GROUND COVER *Grass*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER -*None*

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Off site to Cocheco*

F. PERMEABILITY OF SURFACE MATERIAL *Fair to poor*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Apparent surface till*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE *To river in East*
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH *To West*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED *X*
5. CEMETERIES
6. HIGHWAYS
7. GRAVEL PITS
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES *Developed Dover to East*
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Very good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area is very hilly with many single family homes. Lack of excavations made determination of subsoil difficult. Area has many paved roads and it appears water flows away from site and not downward. Overall area shows little evidence to support its being a good aquifer.*

O. CONTINUATIONS

LOCATION: *Dover, NH*
AQUIFER: *Do-4*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE *Throughout* d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY *Hollis-Charlton-Buxton-Scantic Association throughout*

3. GOLDTHWAIT *Till throughout*

B. POTENTIAL

1. WIEGEL: _____

2. COTTON: *Low potential till area*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Sloped terrace*

B. ELEVATION: *160-120' MSL*

C. VEGETATION:

1. GROUND COVER *Forest*

2. TREES

a. PINES *Near rivers* b. MIXED SMALL DIAMETER *along County Farm Road*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Cocheco River and Reyners Brook to west*

E. APPARENT SURFACE DRAINAGE *To western rivers*

F. PERMEABILITY OF SURFACE MATERIAL *Fair to good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Seemed sandy, hard to determine due to lack of excavations*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE *To west*
3. MARSH DEPOSITS
4. OTHER *River to west*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Only 1 or 2 houses within area*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Pines along river indicate sandy material, lack of excavations make confidence low. Portion along river had most pines and could be outwash plain. Overall area appears to have low potential as useful aquifer.*

O. CONTINUATIONS

LOCATION: *Dover, NH*
AQUIFER: *Do-5*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Till to East and South; Marine to West; outwash to North*

2. SOIL SURVEY *Small amount of Windsor fine sandy loam; mostly soils from Hollis-Charton-Buxton-Scantis Association--well drained soils or poor drained marine **

3. GOLDTHWAIT *Indicates ice contract deposit*
Geology of the Seacost Region NH--area underlain by Metamorphic rock (Berwick formation)

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicates area as having poor potential as possible groundwater source*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Sloped terrace*

B. ELEVATION: *140-180' MSL*

C. VEGETATION:

1. GROUND COVER *Forested, some open grassed areas*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER _____

c. OTHER *Mixed types of various sizes*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Few ponds around outside area, Reyners Brook flows to East*

E. APPARENT SURFACE DRAINAGE *Towards Reyners Brook*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Some sand observed--most of area inaccessible*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Long Hill to West--definite till, possible ledge outcrops, Till to North*
5. UNABLE TO DISTINGUISH *Boundaries to East and South; difficult to determine due to inaccessiblity*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS *few farms* 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor--could observe area only from roads to North and South*

N. OTHER OBSERVATIONS & CONCLUSIONS *Due to inaccessiblity, difficult to determine much about this area. Some sandy material was observed behind houses along Sixth Street, which could possibly be outwash material. Field observations could not verify or confirm information from literature or delineation. This area could possibly be a fair to poor aquifer due to small size and possible (if any) outwash deposits.*

O. CONTINUATIONS

* *deposits*

LOCATION: *Durham, NH*
AQUIFER: *Du-1*
DATE: *8-18-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Entire area* b. OUTWASH

c. MARINE d. TILL

e. MODIFICATIONS *Ice contact deposits continue southward to within 1/4 mile of Lamprey River*

2. SOIL SURVEY *Charlton-Hollis-Scantic Association*

3. GOLDTHWAIT *Stratified gravel and sandy gravel deposits over entire area*

B. POTENTIAL

1. WIEGLE:

2. COTTON:

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE 2. FILLED IN VALLEY

3. FLAT FLOOD PLAIN 4. HILLS

5. OTHER *Relatively flat terrace with a hill and hole located within the north eastern section*

B. ELEVATION:

C. VEGETATION:

1. GROUND COVER *Sparse grass*

2. TREES

a. PINES *Throughout* b. MIXED SMALL DIAMETER

c. OTHER

D. SURFACE WATER

1. PONDS 2. STANDING WATER IN LOW AREAS *X*

3. SMALL STREAMS AND BROOKS *Not within site* 4. RIVERS

5. LAKES 6. SWAMPS

7. OTHER

E. APPARENT SURFACE DRAINAGE *Water drains to the west and north into the Chelsey Brook and its tributary*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact (light brown fine-medium sand with traces of silt and boulders)*

2. OTHER DEPOSITS *None observed within site*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE *Western section of site*
3. MARSH DEPOSITS *To north and west*
4. OTHER *Till observed to east of site (Mill Road)*
5. UNABLE TO DISTINGUISH *Throughout majority of eastern portion of site*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *To south* 6. HIGHWAYS
7. GRAVEL PITS *Active* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor access to east, road east of Spruce Hole is closed down*

N. OTHER OBSERVATIONS & CONCLUSIONS *Poor access limited exploration. Some areas explored by foot. Pines and deposits in gravel pit indicate good aquifer material. Sandy material observed at Griffiths Cemetary to south may indicate aquifer extends to the southeast. There is also a possibility that aquifer connects to Le-4 under Chelsey Brook at a lower level. Excavations at the southwest gravel pit in excess of 30' deep indicate deposits to be thick. The aquifer potential for this area appears to be good to very good.*

O. CONTINUATIONS

LOCATION: *East Kingston, NH*
AQUIFER: *Ek-1*
DATE: *8-23-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH ____

c. MARINE ____ d. TILL ____

e. MODIFICATIONS *Till to North; outwash to East, South and West; marine to Southeast; swamp to Northwest*

2. SOIL SURVEY ____

3. GOLDTHWAIT *Area made up of ice contact and outwash deposits; some drumlins to North Geology of Haverhill 15'Quad., Southeast NH area underlain by metamorphic**

B. POTENTIAL

1. WIEGLE: ____

2. COTTON: ____

C. OTHER ____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE ____ 2. FILLED IN VALLEY ____

3. FLAT FLOOD PLAIN *X* 4. HILLS ____

5. OTHER ____

B. ELEVATION: *110-120' MSL*

C. VEGETATION:

1. GROUND COVER *Forested, some open grassed areas*

2. TREES

a. PINES ____ b. MIXED SMALL DIAMETER ____

c. OTHER *Mixed types of various sizes*

D. SURFACE WATER

1. PONDS ____ 2. STANDING WATER IN LOW AREAS ____

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS ____

5. LAKES ____ 6. SWAMPS ____

7. OTHER *Powwow Pond to West*

E. APPARENT SURFACE DRAINAGE *Towards Pond or Powwow River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Outwash material--tan-reddish yellow fine-medium sands, some gravel (small rounded pebbles)*

2. OTHER DEPOSITS *Surface till*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Pond to West; till, possible ledge to South; streams to East, and Morse Hill to North*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS *Few* 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Very few excavations found in area. Deposits observed were surface till and outwash with small amount of gravel in them. (Not enough to call them ice contact deposits). Outwash deposits were stratified. Field observations generally confirmed delineation, but no ice contact material observed as indicated by Bradley. Difficult to assess potential of this aquifer. Depending upon thickness of deposits and how much they're saturated, this aquifer could have fair to poor groundwater potential.*

O. CONTINUATIONS
* *rock, (Elliot Formation and Phyllite member)*

LOCATION: *East Kingston*
AQUIFER: *Ek-2*
DATE: *8-24-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT *Small ice contact deposit in general area surrounded by stratified sand and silt.*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY *X*

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Small rolling hills throughout*

B. ELEVATION: *100-120' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse*

2. TREES

a. PINES *Some* b. MIXED SMALL DIAMETER *Some*

c. OTHER *Some older larger trees observed*

D. SURFACE WATER

1. PONDS *2 observed* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *Fringes* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Through brook system to Exeter River*

F. PERMEABILITY OF SURFACE MATERIAL *Fair*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Granular material (hard to determine)*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS

1. BEDROCK *Observed at York Hill*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Brooks surround site, probable drumlins to north and east (York Hill and Moulton Ridge).*
5. UNABLE TO DISTINGUISH *Poor access*

I. MANMADE FEATURES

1. SPARSE SINGLE DWELLINGS X
2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES
6. HIGHWAYS
7. GRAVEL PITS *No access*
8. INDUSTRIES
9. FARMS X
10. SHOPPING CENTER
11. OTHER *Very sparse, maybe 4 houses in area*

J. POLLUTION SOURCES

1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Central road only*

N. OTHER OBSERVATIONS & CONCLUSIONS

Poor access and lack of excavations make observations difficult. Area appears to have fair potential as an aquifer, with a good possibility of recharge from surrounding lowlands and brooks.

O. CONTINUATIONS

LOCATION: *Epping, NH*
AQUIFER: *Ep-1*
DATE: *8-18-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report*

2. SOIL SURVEY _____

3. GOLDTHWAIT *area composed of ice contact deposits and outwash material surrounded by till. Geology of Mt. Pawtuckagay Quad.--area underlain by metamorphic rock**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicates area as having favorable groundwater potential; shows one well in area with yield of 250 gpm at depth of 40'.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *150-180' MSL*

C. VEGETATION:

1. GROUND COVER *Forested*

2. TREES

a. PINES *Mostly, 1-2' dia.* b. MIXED SMALL DIAMETER _____

c. OTHER _____

D. SURFACE WATER

1. PONDS *1-2 small ones* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *1-2 draining into ***** 4. RIVERS *in northwest-Lamprey*

5. LAKES _____ 6. SWAMPS *X in southern portion*

7. OTHER *Some swampy areas to north, Piscassic River to south*

E. APPARENT SURFACE DRAINAGE *To swampy area in south; to Lamprey River in northwest*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Outwash deposits--fine-medium stratified sand tan-reddish brown*

2. OTHER DEPOSITS *Some ground morraine till, possible small ice contact deposit*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Lamprey River to northwest, Hill to west, Piscassic River to south*
5. UNABLE TO DISTINGUISH *Aquifer limits to north and east*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X*
2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES
6. HIGHWAYS *Rtes 101,101A; Railroad tracks*
7. GRAVEL PITS *X some active*
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER *Thickly settled in vicinity of West Epping; Rte 125 nearby*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Field observations indicate this area is an outwash plain which may extend more to the north and east than shown on delineation. Soils and excavations observed tended to confirm Goldthwait's interpretations and report. Swampy areas indicate high groundwater table and nearby Piscassic and Lamprey Rivers could provide possible recharge potential. Overall area appears to have a high potential as an aquifer. Delineation modified in northwest portion of area at West Epping as only till material was observed north of the Lamprey River.*

O. CONTINUATIONS

* *(Berwick Formation)*

** *Lamprey River*

LOCATION: *Epping, NH*
AQUIFER: *Ep-2*
DATE: *8-16-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Southwest fringe* b. OUTWASH *South and East portion*

c. MARINE *Northwest portion* d. TILL *North portion*

e. MODIFICATIONS

2. SOIL SURVEY

3. GOLDTHWAIT *Surficial geology of NH (map)--drumlin in Northeast portion, ice contact material in Southwestern portion, till in and around rest of area.**

B. POTENTIAL

1. WIEGLE:

2. COTTON: *Favorable potential for groundwater*

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY

3. FLAT FLOOD PLAIN 4. HILLS *Northeastern portion*

5. OTHER

B. ELEVATION: *120-140' MSL*

C. VEGETATION:

1. GROUND COVER *Forested, some open grassed areas*

2. TREES

a. PINES b. MIXED SMALL DIAMETER

c. OTHER *Mixed types of various sizes*

D. SURFACE WATER

1. PONDS 2. STANDING WATER IN LOW AREAS

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS

5. LAKES 6. SWAMPS

7. OTHER *Lamprey River to South of area; swamp to West*

E. APPARENT SURFACE DRAINAGE *Towards Lamprey River*

F. PERMEABILITY OF SURFACE MATERIAL *Fair-poor in Northeastern portion; good in rest of area*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Till in Northeastern portion of area; outwash fine-medium light colored sands in West and South portions; buff-tan colored*

2. OTHER DEPOSITS

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Lamprey River to South and East; hills to North and West*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS *Several* 10. SHOPPING CENTER
11. OTHER *Few new homes being built*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS *X*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Town dump--stumps, wood, refrigerators, etc.--not sanitary landfill--observed at Southwest edge of area.*
Probable drumlin observed in Northeast portion of delineated area. Sand pits and possible outwash deposits observed to West of this area. Where excavations were found, deposits closely matched those as shown by Bradley. Field observations generally confirmed information from maps and literature. Original delineation modified: drumlin in Northeast taken out, and orientation of aquifer changed from North to South to West to East. Area probably has good to fair potential as an aquifer if deposits are thick enough.

O. CONTINUATIONS

* *Geology of Mt Pawtuckaway Quad--area underlain by metamorphic rock (Elliot Formation)*

LOCATION: *Exeter, NH*
AQUIFER: *Ex-1*
DATE: *8-23-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE *Throughout* d. TILL _____

e. MODIFICATIONS *Some outwash to West*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Shows area as stratified sands and silt; area to Northwest is ice contact*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Shows area as possible potential*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *30-40' MSL*

C. VEGETATION:

1. GROUND COVER *Marshy material*

2. TREES

a. PINES *Some along river* b. MIXED SMALL DIAMETER *Some*

c. OTHER *Some Willows*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS *Exeter*

5. LAKES _____ 6. SWAMPS *X*

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *To Exeter River North*

F. PERMEABILITY OF SURFACE MATERIAL *Poor to fair*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Marine deposits, some clean fine sand observed, sand could underlie marine deposits*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH *Due to poor access*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *3 or 4 in area* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Recreation park in North*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Exeter has town system*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Town well located on west central road closed down(100 deep well); Town now takes water from Exeter River and pumps to reservoir and treatment plant.*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *Entire Exeter River area to West may be granular flood plain and may extend the size of this aquifer. Poor access and surface marine deposits make it hard to confirm limits in field.*

O. CONTINUATIONS

LOCATION: *Fremont, NH*
AQUIFER: *Fr-1 and Fr-2*
DATE: *8-18-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Surficial Geology of NH (map)--area composed of till material*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Favorable potential as groundwater source*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *160-240' MSL*

C. VEGETATION:

1. GROUND COVER *Tree covered (Fr-1); Trees, heavy under brush, some open grassed**

2. TREES

a. PINES *1-2' diameter* b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS *X Exeter River*

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *To Exeter River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Surface till--silt, sand, rounded and angular small stones light brown-tan colored*

2. OTHER DEPOSITS *Possible swamp deposits, flood plain deposits*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS *X*
4. OTHER *Hill to South of Fr-1*
5. UNABLE TO DISTINGUISH *X (Fr-2)*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *Field observations were very difficult. No excavations were found in either area. Fr-1 was covered by dense forest growth. Fr-2 could only be observed from road and swampy area around Exeter River. It is difficult to assess the groundwater potential of these areas. Both are probably located on flood plains. A portion of Fr-2 could be on part of a Kame area. Potential aquifer deposits along Exeter River in this area may be interconnected. Tree farm observed in Northeast portion of Fr-2. One to two possibly shallow wells observed (one with hand pump).*

O. CONTINUATIONS

* *areas (Fr-2)*

LOCATION: *Fremont, NH*
AQUIFER: *Fr-3*
DATE: *8-18-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT *Ice contact deposits throughout site*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Defines area as most favorable*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Generally flat, some hills in West; central area and surrounding site--**

B. ELEVATION: *160-180' MSL*

C. VEGETATION:

1. GROUND COVER *Mostly forest and swamp vegetation*

2. TREES

a. PINES *In West* b. MIXED SMALL DIAMETER *around swamp*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS *Spruce*

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Southward to Exeter River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact deposits (tan to buff, medium to coarse sand, gravel and some rounded stones)*

2. OTHER DEPOSITS *Some apparent outwash deposits (sand lenses in Ice contact material observed); Marine or swamp deposits near Spruce swamp (white, tan silty sand). One to two feet thick till surface throughout area.*

H. BOUNDARY CONDITIONS
1. BEDROCK *Possible ledge along Rte 107 near Fremont Station*
2. SLOPING OFF OF TERRACE *Throughout boundaries*
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH *In some areas due to surface till and marsh layer*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *X*
3. DEVELOPING SUBDIVISIONS *X* 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS *Several active* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Some area residents have high iron content in well water, water surface estimated to be about 120-130' MSL***

L. DESCRIPTION OF PHOTOS *#12--Looking West at Southeast gravel pit. #13 --Looking West at Northeast gravel pit*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Corps delineation agrees fairly well with field observations. Delineation extended to east due to observed active gravel pits. Potential all along Exeter River for similar outwash type deposits--North up to Chester (fine material at site similar to that observed in Chester). Potentially good aquifer depending upon thickness of outwash type materials and swamp deposits. High Iron content could also effect potential.*

O. CONTINUATIONS

* *apparent "Kame and Kettle" topography*

** *At Southeast Gravel pit.*

LOCATION: *Fremont, NH*
AQUIFER: *Fr-4*
DATE: *8-17-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT *Ice contact deposits and stratified sand and silt define general area*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Favorable in general area, however not actually defining area. Shows area extending along Lamprey River to northwest to Ra-1.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Variable--West flat, East hilly*

B. ELEVATION: *200'*

C. VEGETATION:

1. GROUND COVER *Sparse*

2. TREES

a. PINES *Some scrub* b. MIXED SMALL DIAMETER *some*

c. OTHER _____

D. SURFACE WATER

1. PONDS *2 small ones* 2. STANDING WATER IN LOW AREAS *X*

3. SMALL STREAMS AND BROOKS *To Southeast* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Southerly to Exeter River*

F. PERMEABILITY OF SURFACE MATERIAL *Fair to good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact on Northern section*

2. OTHER DEPOSITS *Outwash observed on Southwest section*

H. BOUNDARY CONDITIONS
1. BEDROCK *Observed in Eastern fringes*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS *To West and Northeast*
4. OTHER *Exeter River to South*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS *Abandoned* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area probably represents outwash plain. Northeast portion fairly hilly with outcrops. Aquifer potential appears to be fair to poor, depending on thickness of outwash deposits and aquifer size.*

O. CONTINUATIONS

LOCATION: *Greenland, NH*
AQUIFER: *Gr-1 & Gr-2*
DATE: *8-10-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Entire area* b. OUTWASH

c. MARINE *Separates Gr-1 & Gr-2* d. TILL

e. MODIFICATIONS

2. SOIL SURVEY

3. GOLDTHWAIT *Till throughout area*

B. POTENTIAL

1. WIEGLE:
2. COTTON: *Most favorable*

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY
3. FLAT FLOOD PLAIN 4. HILLS
5. OTHER *Central valley along Haines Brook*

B. ELEVATION: *Gr-2 60-80'. Gr-1 80-100' MSL*

C. VEGETATION:

1. GROUND COVER *Grass, thick brush*
2. TREES
   a. PINES b. MIXED SMALL DIAMETER *X 12" diam. maximum*
   c. OTHER

D. SURFACE WATER

1. PONDS 2. STANDING WATER IN LOW AREAS
3. SMALL STREAMS AND BROOKS *Haines Brook* 4. RIVERS
5. LAKES 6. SWAMPS
7. OTHER

E. APPARENT SURFACE DRAINAGE *Central to Haines Brook, western to Winnicut River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact--rounded sand and gravel*
2. OTHER DEPOSITS *Marine deposits along Haines Brook*

II. BOUNDARY CONDITIONS

1. BEDROCK *Outcrops to southeast along Breakfast Hill Road*
2. SLOPING OFF OF TERRACE *Throughout exterior boundries*
3. MARSH DEPOSITS *To north*
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES

1. SPARSE SINGLE DWELLINGS *X*
2. SMALL BUSINESSES *X*
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES *X*
6. HIGHWAYS *Rte 95*
7. GRAVEL PITS *Active throughout*
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES

1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Town well observed near Haines Brook*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY

N. OTHER OBSERVATIONS & CONCLUSIONS *We feel that marine deposits along Haines Brook are shallow and Gr-1 and Gr-2 are connected at a lower level; lack of surface drainage features on terrace indicates free draining material; outwash deposits near camp Gundalow indicates additional area. Overall area shows very good potential.*

O. CONTINUATIONS

LOCATION: *Hampstead, NH*
AQUIFER: *Rs-1*
DATE: *8-11-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT *Till throughout*

B. POTENTIAL

1. WIEGLE: *Favorable*
2. COTTON: *Hard pan not favorable*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY *X*
3. FLAT FLOOD PLAIN _____ 4. HILLS _____
5. OTHER *Hilly area to northeast*

B. ELEVATION: *220-260' MSL*

C. VEGETATION:

1. GROUND COVER *Thick tree*
2. TREES
   a. PINES *X* b. MIXED SMALL DIAMETER *X*
   c. OTHER _____

D. SURFACE WATER

1. PONDS *2 very small* 2. STANDING WATER IN LOW AREAS *X*
3. SMALL STREAMS AND BROOKS *On fringes* 4. RIVERS _____
5. LAKES _____ 6. SWAMPS _____
7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Northern direction to Barlett Brook*

F. PERMEABILITY OF SURFACE MATERIAL *Fair to good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact observed in central portion of site*
2. OTHER DEPOSITS *Till observed at northeast boundary*

H. BOUNDARY CONDITIONS
1. BEDROCK *Some observed along road on western fringe*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Till observed along northeast boundary*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *Few*
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS *X* 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY

N. OTHER OBSERVATIONS & CONCLUSIONS *This aquifer is relatively small, however it may extend around southeast hill along North County Road into the plaistow kame. Due to the direction of flow this additional area may not provide water to aquifer Hs-1 as shown. Overall area has fair to good potential dependent on actual size.*

O. CONTINUATIONS

LOCATION: *Hampton, NH*
AQUIFER: *HA-1*
DATE: *8-10-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH _____

c. MARINE *Surrounds entire area* d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT *Stratified gravel and sandy gravel deposits for entire area*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicates area as most favorable to east and as favorable to west*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Very flat*

B. ELEVATION: *40-60' MSL*

C. VEGETATION:

1. GROUND COVER *Grass - sparse*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS *X*

3. SMALL STREAMS AND BROOKS *outside of area* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *West-into Line swamp, East-into Lamprey Pond and Meadow Pond, no real drainage features on terrace*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact (gravel & coarse sand)*

2. OTHER DEPOSITS *Marine in low areas and adjacent to site*

H. BOUNDARY CONDITIONS
1. BEDROCK *Observed in northeast fringes*
2. SLOPING OFF OF TERRACE *Southern fringe*
3. MARSH DEPOSITS *Southern and western fringe*
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES *X*
3. DEVELOPING SUBDIVISIONS *X*
4. HIGHLY POPULATED *X*
5. CEMETERIES *Pine Grove*
6. HIGHWAYS *Rte 95 & Rte 101*
7. GRAVEL PITS *Throughout*
8. INDUSTRIES *Some small*
9. FARMS
10. SHOPPING CENTER
11. OTHER *Hampton Airport to north*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Existing; observed construction of sewer system*
2. LANDFILLS *Large dump at Elmwood corners*
3. NEARBY SALT WATER *Atlantic Ocean and Hampton Tidal Flats*
4. INDUSTRIES *Small*
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good, roads throughout area*

N. OTHER OBSERVATIONS & CONCLUSIONS *Observed Kame deposits along Hampton Road; small area along North Shore Road indicates till and bedrock outcrops and was eliminated from site. Marine deposits around site should keep out salt water. Lack of surface drainage features throughout site indicates area to be free draining. Overall area has good potential limited by pollution sources.*

O. CONTINUATIONS

LOCATION: *Kensington, NH*
AQUIFER: *Ke-1*
DATE: *8-23-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Defines entire area* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Shows ice contact deposits extending around Horse Hill and Pevear Hill and extending to Ke-2*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Shows area as several isolated small areas of stratified sands and gravels*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Generally shows area as favorable*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *Southern portion* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Northern portion more like Esker*

B. ELEVATION: *60-120' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse*

2. TREES

a. PINES *Throughout* b. MIXED SMALL DIAMETER *Small*

c. OTHER _____

D. SURFACE WATER

1. PONDS *1 or 2* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *Fringes* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Back River to south, Brook River to east.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact (light brown F-M clean sand some rounded gravel)*

2. OTHER DEPOSITS *Marine on fringes*

H. BOUNDARY CONDITIONS
1. BEDROCK *Horse Hill, Pevear Hill, possible Hoosac and Round Hill*
2. SLOPING OFF OF TERRACE *East side*
3. MARSH DEPOSITS *North, far eastern*
4. OTHER
5. UNABLE TO DISTINGUISH *Eastern portion*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *X* 6. HIGHWAYS
7. GRAVEL PITS *X* 8. INDUSTRIES
9. FARMS *X* 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Shallow hand pump wells observed in area*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Fair--lack of road signs in south make it hard to determine locations.*

N. OTHER OBSERVATIONS & CONCLUSIONS *This area appears to be composed of good aquifer deposits; southern portion has finer material, could be outwash or delta type material, north is more like typical narrow Esker. Area could extend into Ke-2 depending on thickness of marine type surface material and depth to bedrock in Round and Hoosac Hill Valley. Area appears to be ver sandy with pines in southeast portion; aquifer might extend into this area. Pines and sandy type material were observed along Rte 107 all the way to Rte 95. Total aquifer could be considerably larger and this area should be explored further. Area appears to have good to fair potential depending on quality of recharge from surface waters and actual aquifer size.*

O. CONTINUATIONS

LOCATION: *Kensington, NH*
AQUIFER: *Ke-2*
DATE: *8-23-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Entire area* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Extends area to Ke-1*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Shows area as isolated broken up small areas of stratified sands and gravels*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Shows area as possible potential area*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Relatively flat sloping to east*

B. ELEVATION: *40-60' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse grass*

2. TREES

a. PINES *Mostly in south* b. MIXED SMALL DIAMETER _____

c. OTHER *Willows in northeast*

D. SURFACE WATER

1. PONDS *Philbrick in south* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Eastward to Great Meadows*

F. PERMEABILITY OF SURFACE MATERIAL *Fair*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Appears to be granualar, possible outwash*

2. OTHER DEPOSITS *Marine to northeast*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Pines*
5. UNABLE TO DISTINGUISH *Majority of area poor access, pines only clue at all*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *Very sparce* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS *Some in south* 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor, roads only on west and south fringes*

N. OTHER OBSERVATIONS & CONCLUSIONS *Pines indicate area to be sandy, no open excavations. Extention of pines to southeast may indicate larger area. Could be connected to Ke-1 (See Ke-1). Area looks like good aquifer deposits, boundaries are indistinguishable.*

O. CONTINUATIONS

LOCATION: *Kingston and Newton*, NH*
AQUIFER: *Ki-1, Ki-2, Ki-3, Ne-2*
DATE: *8-15-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Exact delineation for all* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Swamp deposits and outwash deposits borders majority of site with till deposits bordering Ne-2 to the southeast*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Ki-2 and Ki-3 generally are ice contact, Ki-1 and Ne-2 are generally stratified sand and silt outwash type deposits*

B. POTENTIAL

1. WIEGLE: *(Salem-Plaistow)--defines all aquifers as shown as most favorable*
2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____
3. FLAT FLOOD PLAIN _____ 4. HILLS _____
5. OTHER *Flat lowlands*

B. ELEVATION: *120-200' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse*
2. TREES
   a. PINES *Throughout* b. MIXED SMALL DIAMETER *some*
   c. OTHER _____

D. SURFACE WATER

1. PONDS *Country Pond* 2. STANDING WATER IN LOW AREAS _____
3. SMALL STREAMS AND BROOKS *on fringes* 4. RIVERS _____
5. LAKES _____ 6. SWAMPS _____
7. OTHER _____

E. APPARENT SURFACE DRAINAGE *All flow into Country Pond and exit north eastward to Powwow Pond*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact deposits (somewhat fine could be outwash)*
2. OTHER DEPOSITS _____

Ki-1, Ki-2, Ki-3 and Ne-2

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS *Separate Ne-2 and Ki-2, Ki-3 and Ki-1, establish bounds of* **
4. OTHER *Till defines central and southern Ne-2 boundary.*
5. UNABLE TO DISTINGUISH *In most cases due to poor access*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Small camps and summer cottages surrounded pond*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Overall poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *Sandy ice contact (or outwash) deposits were found throughout the area. Literature indicates that marsh type deposits may be shallow and entire area may represent large aquifer. Streams feeding country pond and pond itself may provide excellent recharge for underlying aquifer. This area may prove to be excellent aquifer.*

O. CONTINUATIONS

* *Due to location, similar conditions and limited access, all these aquifers are being grouped together.*

***Ne-2 to west*

LOCATION: *Kingston, NH*
AQUIFER: *Ki-4*
DATE: *8-23-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH *X*

c. MARINE ____ d. TILL ____

e. MODIFICATIONS *Area is made up of two small ice contact deposits surrounded by outwash material*

2. SOIL SURVEY ____

3. GOLDTHWAIT *Area mostly outwash material; some ice contact deposits in southern portion. Geology of Haverhill 15' Quad. Southeast NH--area underlain by **

B. POTENTIAL

1. WIEGLE: ____

2. COTTON: *Indicates area as having good to favorable groundwater potential*

C. OTHER ____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE ____ 2. FILLED IN VALLEY ____

3. FLAT FLOOD PLAIN ____ 4. HILLS ____

5. OTHER *Flat plateau*

B. ELEVATION: *120-140' MSL*

C. VEGETATION:

1. GROUND COVER *Forested*

2. TREES

a. PINES *some* b. MIXED SMALL DIAMETER *X*

c. OTHER ____

D. SURFACE WATER

1. PONDS ____ 2. STANDING WATER IN LOW AREAS *X*

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS ____

5. LAKES ____ 6. SWAMPS ____

7. OTHER ____

E. APPARENT SURFACE DRAINAGE *Towards Little River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Outwash--stratified fine-medium sand, yellow-tan colored some sandy ice contact material observed in western portion--fine-coarse sands,***

2. OTHER DEPOSITS *Surface till*

H. BOUNDARY CONDITIONS

1. BEDROCK *To North and in Northwest portion of area*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS *To Southwest*
4. OTHER *Little River flows around and through area from Southwest to Northeast*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES

1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *X*
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS *Rte 125, Rte 107*
7. GRAVEL PITS *X* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Some new homes being built*

J. POLLUTION SOURCES

1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS *Town dump at old "Gravel Pit" (sand pit) site*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area appears to be possible outwash plain with some ice contact material. Field observations confirm delineation as shown on Bradley maps. Delineation modified to eliminate area to west of Little River where ledge outcrops observed. Area to South of Rte 107 added due to gravel pit observed there--sand and sands ice contact material excavated at least 20-25' deep was found there. Standing water found in one area of this pit about 25' below original ground surface. Difficult to assess groundwater potential of this aquifer. If deposits thick, may be fair aquifer. If not, probably would be a poor aquifer.*

O. CONTINUATIONS

* *metamorphic rock (Elliot Formation)*

** *gravel, some rounded stones*

LOCATION: Lee, NH
AQUIFER: Le-1
DATE: 8-16-78

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Majority of area* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Marine and till deposits to northeast*

2. SOIL SURVEY *Hollis-Charlton-Buxton-Scantic Association to east, Charlton-Hollis-Scantic Association to west*

3. GOLDTHWAIT *Till throughout*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Relatively flat plain*

B. ELEVATION: *100' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse grass, some farming*

2. TREES

a. PINES *X* b. MIXED SMALL DIAMETER _____

c. OTHER _____

D. SURFACE WATER -*None observed*

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Southwest to Lamprey River, southeast to Folleits Brook*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Assumed to be ice contact--no open cuts*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Till observed east of Littel Hook Road*
5. UNABLE TO DISTINGUISH *Majority of site*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *To northeast* 6. HIGHWAYS
7. GRAVEL PITS *None* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good to east, no roads in southwest*

N. OTHER OBSERVATIONS & CONCLUSIONS *Questionable area due to lack of cuts and excavations. Pines to north of site may indicate larger area; possible till and sloping off of plain to southeast eliminated some area as shown on map.*

O. CONTINUATIONS

LOCATION: *Lee, NH*
AQUIFER: *Le-2*
DATE: *8-16-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Majority of site* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Marine deposits to south*

2. SOIL SURVEY *Charlton-Hollis-Scantic Association*

3. GOLDTHWAIT *Till throughout*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Low potential--till deposits throughout*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *80-100' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse grass*

2. TREES

a. PINES *Throughout* b. MIXED SMALL DIAMETER _____

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *Eastern* 4. RIVERS *Lamprey to north*

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *North to the Lamprey River*

F. PERMEABILITY OF SURFACE MATERIAL *Very good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Outwash observed along river*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Pine trees throughout*
5. UNABLE TO DISTINGUISH *Poor access limits delineation*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS *Small* 10. SHOPPING CENTER
11. OTHER *Camping areas along north and south banks of River*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *No open cuts and poor access limited survey. Some fine sand and pine trees were observed on north bank of Lamprey River. Questionable area.*

O. CONTINUATIONS

LOCATION: *Lee, NH*
AQUIFER: *Le-3*
DATE: *8-23-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report*

2. SOIL SURVEY *Hinchley-Windsor-Savgatuck Association--outwash and ice contact type deposits*

3. OTHER *Geology of Mt. Pawtuckaway Quad.--area underlain by metamorphic rock (Berwick and Elliot Formations) Surficial Geology of NH (map) ice contact deposit*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Favorable potential for groundwater*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Plateau--flat to gently rolling*

B. ELEVATION: *100-160' MSL*

C. VEGETATION:

1. GROUND COVER *Forest, open areas*

2. TREES

a. PINES *1-2' diameter & less* b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Little River to south, Wheelwright Pond to northwest*

E. APPARENT SURFACE DRAINAGE *Towards Little River or Wheelwright Pond*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact material--fine-coarse sand, gravel rounded stones; some cobbles and boulders-some stratification; light brown color,**

2. OTHER DEPOSITS *Flood plain material--white-buff fine-medium sand, silt some lenses of coarser material*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE X
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH *Limits to the north on Rte 155*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES X
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES X
6. HIGHWAYS
7. GRAVEL PITS X
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER *Lee center with numerous houses, public buildings, small businesses in central portion of area.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#14 looking east at ice contact material in gravel pit ½ mile west of Lee Center along Mast Road; #15 looking north at floodplain deposits***

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area appears to be kame plateau (plain) with steep sides to south, west and east gradual slope to north. Thus, northern boundary hard to accurately determine. Field observations tend to confirm delineation to east and south, and information in literature. The gravel pit located about ½ mile west of Lee along Mast Road has ice contact material excavated 20-30' deep. On northern edge of this pit is good amount of sand and probable flood plain deposits- well stratified (Some cross bedding) with veins of coarse material running through it. Delineation could possibly be extended to west, Depending upon thickness of deposits, this area could be potentially good aquifer.*

O. CONTINUATIONS

* *some sand lenses*

** *in gravel pit ½ mile west of Lee Center along Mast Road*

LOCATION: *Lee, NH*
AQUIFER: *Le-4*
DATE: *8-16-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY *Charlton-Hollis-Scantic Association*

3. GOLDTHWAIT _____

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Favorable deposits within Lee area, but not delineating entire aquifer*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Semi-flat terrace, high in the west sloping eastward*

B. ELEVATION: *100-140' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse*

2. TREES

a. PINES *Throughout* b. MIXED SMALL DIAMETER _____

c. OTHER _____

D. SURFACE WATER

1. PONDS *Turtle Pond* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *South and southeast to Chelsey Brook, North and east to Oyster River*

F. PERMEABILITY OF SURFACE MATERIAL *Very good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact (possible outwash) all along Garitty Road*

2. OTHER DEPOSITS *Marine deposits near Turtle Pond*

H. BOUNDARY CONDITIONS
1. BEDROCK *Observed at Layne Hill*
2. SLOPING OFF OF TERRACE *South Boundary and east boundary*
3. MARSH DEPOSITS
4. OTHER *Till observed along west boundary*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *X* 6. HIGHWAYS *X*
7. GRAVEL PITS *X* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#32 Outcrops at Layne Hill*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *4-5 Active quarries along Garitty Road confirm ice contact (possible outwash) in central area; bedrock at Layne Hill and observed till establish western and northern boundary; pines in central area further confirm sandy material. Aquifer may connect to Du-1 below shallow marine deposits associated with Chelsey Brook. Area has good potential as a possible groundwater source.*

O. CONTINUATIONS

LOCATION: *Lee, N.H.*
AQUIFER: *Le-5*
DATE: *8-23-78*

I. LITERATURE REVIEW
A. DEPOSITS (PREDOMINANT)
1. BRADLEY
a. ICE CONTACT _____ b. OUTWASH _____
c. MARINE _____ d. TILL _____
e. MODIFICATIONS *Not covered by Bradley Report*

2. SOIL SURVEY *Hinckley-Windsor-Saugatuck association - outwash and ice contact type deposits.*

3. OTHER *Geology of Mt. Pawtuckaway Quad-area underlain by Metamorphic Rock (Berwick Formation) Surficial Geology of N.H. (map) - mixed till, outwash,**

B. POTENTIAL
1. WIEGLE: _____
2. COTTON: *Favorable potential for groundwater*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY
1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____
3. FLAT FLOOD PLAIN _____ 4. HILLS _____
5. OTHER *Flat, hummocky area*

B. ELEVATION: *140 - 200' MSL*

C. VEGETATION:
1. GROUND COVER *Mostly forested, some open grassed areas*
2. TREES
a. PINES *1-2' diameter* b. MIXED SMALL DIAMETER *X*
c. OTHER *Western portion of area more mixed types of various sizes*

D. SURFACE WATER
1. PONDS _____ 2. STANDING WATER IN LOW AREAS *X*
3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____
5. LAKES _____ 6. SWAMPS _____
7. OTHER *Oyster River to South, Bellamy River to North*

E. APPARENT SURFACE DRAINAGE *Towards rivers*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY
1. PREDOMINATE DEPOSIT *Ice contact and outwash material; ice contact deposits: medium-coarse sands, gravels, all sizes rounded stones; tan-reddish brown;***

2. OTHER DEPOSITS *Surface till*

H. BOUNDARY CONDITIONS
1. BEDROCK - *to southeast at Lee Five Corners, and all along Shell Road.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Streams to north and south; hills to west.*
5. UNABLE TO DISTINGUISH *North and south boundaries hard to determine.*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES X
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS Rte 125
7. GRAVEL PITS X 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Some new homes being built; state highway garage.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#16 -looking west at gravel pit west of Sheep Road*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Entire area appears to be made up of fairly thick ice contact and outwash deposits. A large number of active gravel pits were observed throughout area - some in excess of 40' deep. Eastern portion of area has more ice contact material, sometimes in stratified layers. Western portion is mostly outwash with stratified sands and some gravels. Western ice contact deposits are well stratified. Area probably has a very good potential as an aquifer. Gravel pits and deposits on fringes of area have been used to modify the delineation. Due to closeness and similar deposits, separate aquifers in Lee and Barrington might be connected. Overall area has good potential.*

O. CONTINUATIONS

* *and ice contact deposits.*

** *outwash-stratified fine-coarse sands, tan-yellow brown.*

LOCATION: *Madbury, N.H.*
AQUIFER: *Ma-1*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH *X*

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *till to southeast, area surrounded by marine deposits.*

2. SOIL SURVEY *Mostly Hinckley-Windsor-Saugatuck association; some other soils mixed in.*

3. OTHER *Surficial Geology of N.H. (map) - ice contact and outwash deposits. Geology of the Seacoast Region, N.H. (map)-area underlain by igneous rock**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Most favorable potential for groundwater; well field yield = 1400 gpm***

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *20 - 40' MSL*

C. VEGETATION:

1. GROUND COVER _____

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *Johnson Creek* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *to Johnson Creek*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Sandy material - tan-light brown color. Some small stones and pebbles.*

2. OTHER DEPOSITS *Till material.*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Till material observed on hills around area.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Well field along Johnson Creek - 4 well houses (pump stations)*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER *Sewerage Treatment Plant at edge of area.*

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION O PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Public water supply wells (4 structures) located along Johnson Creek to east of Freshet Road. Field observations generally checked out with delineation and literature information. As have an existing well field site must have some amount of aquifer potential. However, it appears it is probably already being used to a large extent. Thus future potential of site is probably extremely limited. As sewerage treatment plant is on fringe of area (and settling basins were observed within area), this may affect quality of groundwater in the area.*

O. CONTINUATIONS

* *(Exeter diorite)*

** *2 wells at 65' deep.*

LOCATION: *Madbury, N.H.*
AQUIFER: *Ma-2*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH *X*

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Ice contact material to north; marine to west and south; till to east.*

2. SOIL SURVEY *Mostly of Hinckley-Windsor-Saugatuck associations, some other soils mixed in.*

3. OTHER *Surficial Geology of N.H. (map) - ice act deposit. Geology of the Seacoast Region N.H. (map)- area underlain by us rock (Exeter diorite),*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Just outside of most favorable groundwater potential.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Flat plateau.*

B. ELEVATION: *80 - 100' MSL*

C. VEGETATION:

1. GROUND COVER *Some forest, open grassed areas.*

2. TREES

a. PINES *some 1-2' diam.* b. MIXED SMALL DIAMETER *Some*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Small pond and stream to southwest - outside area.*

E. APPARENT SURFACE DRAINAGE *Towards Hoyt Pond.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Yellowish-brown sandy material, fine-coarse sands, some small stones and pebbles.*

2. OTHER DEPOSITS *Surface till.*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE *In all directions.*
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH *limit to northwest.*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS *Rte. 108*
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Field observations tended to confirm delineation (approximately) and information from literature. Area is probably outwash deposit. Potential for future development along Rte. 108 - but no indication yet. Area may be connected to site Dover-2. This site probably has a fair potential as a groundwater source.*

O. CONTINUATIONS

LOCATION: *Madbury, N.H.*
AQUIFER: *Ma-3*
DATE: *8-25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Till to west; area surrounded by marine deposits.*

2. SOIL SURVEY *Hinckley-Windsor-Saugatuck association - outwash and ice contact type deposits.*

3. OTHER *Surficial Geology of N.H. (map) - outwash and ice contact deposits. Geology of the Seacoast Region N.H. (Map)-area underlain by igneous rock*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Most favorable potential for groundwater, well 69' deep; yield 700 gpm.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *Kame plain* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER _____

B. ELEVATION: *140 - 200'MSL*

C. VEGETATION:

1. GROUND COVER *forested*

2. TREES

a. PINES *up to 2-3' diameter* b. MIXED SMALL DIAMETER _____

c. OTHER _____

D. SURFACE WATER

1. PON: *Barbadoes Pond* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Bellamy Reservoir to west, Bellamy River to south.*

E. APPARENT SURFACE DRAINAGE *To reservoir or river.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *ice contact material-some stratified layers; reddish brown-yellowish brown fine-coarse sand, gravel, rounded stones and boulders.*

2. OTHER DEPOSITS *Surface till*

H. BOUNDARY CONDITIONS
1. BEDROCK *To south along Mill Hill Road.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Reservoir to west; till to north.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *From along Rte 9.*
3. DEVELOPING SUBDIVISIONS *X-see Quad sheet* 4. HIGHLY POPULATED
5. CEMETERIES *1-2 small ones* 6. HIGHWAYS *Rte 9*
7. GRAVEL PITS *large active area* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Sand & Gravel Company (Madbury) located in gravel pit area. Man-made**

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#17-Central Sand & Gravel pit*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Field observations generally confirmed information from literature. Delineation modified by ledge in south - taken along north side of Ballamy River. Also extended just about to end of Reservoir and including subdivisions to north. Bellamy Reservoir, public water supply for Portsmouth, may have effect on any potential wells in area (i.e., can't drain reservoir through pumping of aquifer). Cotton indicates existing well in area with high yield. Overall aquifer probably has a very high potential.*

O. CONTINUATIONS

* *public water supply reservoir.*

LOCATION: *Milton, N.H.*
AQUIFER: *Mi-1*
DATE: *8-24-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Area not covered by Bradley Report.*

2. SOIL SURVEY *Area generally made up of soils from Hinckley-Windsor-Saugatuck Association consisting of ice contact and outwash material.*

3. GOLDTHWAIT *Indicates outwash deposits in this area.*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicates area has favorable to most favorable groundwater potential.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER _____

B. ELEVATION: *420' MSL*

C. VEGETATION:

1. GROUND COVER *Forested*

2. TREES

a. PINES *mostly 1-2' diam.* b. MIXED SMALL DIAMETER *Some*

c. OTHER _____

D. SURFACE WATER

1. PONDS *2-Town House and ** 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS *Salmon Falls River*

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Towards ponds and river.*

F. PERMEABILITY OF SURFACE MATERIAL *Good.*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact material - brown-reddish yellow, medium-coarse sand, gravel, small rounded stones.*

2. OTHER DEPOSITS *Surface till.*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Area is peninsula surrounded by water.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES
6. HIGHWAYS
7. GRAVEL PITS
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER *Closely spaced residential and recreational houses.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Ice contact material observed at an excavation about 15-20' deep, no water in pit. Depending upon thickness of deposit, this site could have good potential as an aquifer with excellent recharge possibilities from surrounding bodies of water. Delineation modified to include western portion of peninsula, as no noticable boundary for aquifer was observed in this area.*

O. CONTINUATIONS

* *Milton Ponds*

LOCATION: *Milton, N.H.*
AQUIFER: *Mi-2 and Mi-3*
DATE: *8-24-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Area not covered by Bradley Report.*

2. SOIL SURVEY *Area generally made up of soils from Hinckley-Windsor-Saugatuck Association-which consists of ice contact and outwash materials.*

3. GOLDTHWAIT *Indicates outwash deposits in this area and all along Salmon Falls River.*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicated to have low groundwater potential, except along edge of**

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *420 - 500' MSL*

C. VEGETATION:

1. GROUND COVER *Forested - some open grassed areas*

2. TREES

a. PINES *Some* b. MIXED SMALL DIAMETER *Some*

c. OTHER _____

D. SURFACE WATER

1. PONDS *Northeast Pond* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS *Branch River*

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Towards river and pond; area adjacent to Salmon Falls River.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Surface till; reddish-brown, fine-medium sand.*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK *Ledge along northwest and north boundaries*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Ledge and till to north along Branch Rd.; Hills to west and east; water to south.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES X 6. HIGHWAYS *Rte 16*
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS X 10. SHOPPING CENTER
11. OTHER *Tree Farm near Milton Mills*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *Very difficult to get to south portion of Mi-3 - only access along Branch Rd., Mi-? inaccessible. Only excavation found in area was highway cut - which showed sandy material. Several cemeteries in the area, and topography surrounding it tends to indicate these sites are on an outwash or flood plain. The aquifer probably consists of various types of sands. Due to their proximity, and information from soils survey data, it is likely that these two areas are part of the same aquifer. Overall potential is questionable due to poor access and lack of excavations.*

O. CONTINUATIONS

* *Salmon Falls River, where it is indicated to have a favorable potential.*

LOCATION: *Newfields, NH*
AQUIFER: *Nf-1*
DATE: *8-16-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Area surrounded by till to west and marine deposits to north, east, and south*

2. SOIL SURVEY _____

3. GOLDTHWAIT *Indicates ice contact deposits surrounded by till. Geology of seacoast region of NH--area underlain by Metamorphic rock (Kettery Formation)*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicates area has favorable-most favorable groundwater potential; shows one well on western fringe of area with yield of 45 gpm at depth of 28'.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Flat, gently rolling in south to hilly in north*

B. ELEVATION: *20-100' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse, open grassed and settled areas*

2. TREES

a. PINES *Some* b. MIXED SMALL DIAMETER *Some*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *1-2 small brooks to** 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Swampscott River flows along eastern boundary*

E. APPARENT SURFACE DRAINAGE *Towards Swampscott River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Sandy ice contact material--stratified fine-coarse sands, some gravel and small stones--possibly could be outwash*

2. OTHER DEPOSITS *Outwash material--fine-medium sands in stratified layers, possible marine deposits--well stratified clay-silt--very fine sand layers*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Swampscott River to east, Parting Brook to south; till material to north of Calvary Cemetery, Hills about ½ mile to west*
5. UNABLE TO DISTINGUISH *Aquifer limits to west and north*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES *along Rte 108*
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES *X*
6. HIGHWAYS *Rtes 108 and 85*
7. GRAVEL PITS *X*
8. INDUSTRIES *one in Newfields Center*
9. FARMS
10. SHOPPING CENTER
11. OTHER *Thickly settled area around Newfields Center, including Town offices State Highway garage off of Rte 108.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER *Possibly Great Bay--area on fringe of tidal flats*
4. INDUSTRIES *Possibly from industry at Newfields*
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good except in northwest portion where poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *Field observations generally confirmed delineation and information from literature. Ice contact deposits observed seemed more like outwash material with large amounts of fine-medium clean sands. Delineation could possibly be extended to include Calvary Cemetery in north and west to hills. A water supply well was found along road to central gravel pit so site being used as aquifer to some extent already. Depending upon thickness and extent of ice contact or outwash deposits, area should have good potential as an aquifer.*

O. CONTINUATIONS

* *Swampscott River*

LOCATION: *Newfields*
AQUIFER: *Nf-2*
DATE: *8-16-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH

c. MARINE d. TILL

e. MODIFICATIONS

2. SOIL SURVEY

3. GOLDTHWAIT - *stratified sand and silt and stratified gravel and sandy gravel deposits define general area.*

B. POTENTIAL

1. WIEGLE:

2. COTTON: *Small isolated favorable area defines general site.*

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE 2. FILLED IN VALLEY

3. FLAT FLOOD PLAIN 4. HILLS

5. OTHER *Gently rolling lowlands - generally undulating ground surface.*

B. ELEVATION: *120-140' MSL*

C. VEGETATION:

1. GROUND COVER *Grass and forest*

2. TREES

a. PINES *Throughout* b. MIXED SMALL DIAMETER *Outside area boundaries*

c. OTHER

D. SURFACE WATER

1. PONDS 2. STANDING WATER IN LOW AREAS

3. SMALL STREAMS AND BROOKS 4. RIVERS

5. LAKES 6. SWAMPS

7. OTHER *Few small intermittent streams in and around area.*

E. APPARENT SURFACE DRAINAGE *No surface drainage features.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Probably ice contact for majority of area.*

2. OTHER DEPOSITS *Surface material appeared to be possible ground morraine.*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Pine trees throughout site.*
5. UNABLE TO DISTINGUISH *Due to no excavations within area.*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS X 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Abandoned well observed to have standing water approximately 8 feet below ground surface.*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Eastern section good, majority of site would require walk in on private property (with posted "No Trespassing").*

N. OTHER OBSERVATIONS & CONCLUSIONS *Lack of access limits observations within area. Pines and lack of surface drainage features indicate free draining material.*

O. CONTINUATIONS

LOCATION: *Newmarket*
AQUIFER: *Nm-1*
DATE: *8-19-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Entire area* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY *Hinckley-Windsor-Saugatuck Association for area surveyed.*

3. GOLDTHWAIT *Ice contact throughout.*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Relatively flat Kame plain*

B. ELEVATION: *60 - 100 Ft.*

C. VEGETATION:

1. GROUND COVER *Sparse*

2. TREES

a. PINES *Extensive* b. MIXED SMALL DIAMETER _____

c. OTHER _____

D. SURFACE WATER - *NONE*

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *South-eastward*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact (very clean sandy, may be outwash) throughout.*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK *Observed south of site - southeast of Norton Cem.*
2. SLOPING OFF OF TERRACE *Throughout.*
3. MARSH DEPOSITS *Western boundary.*
4. OTHER *Pines appear to define area in northeast.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS *Signs of* 4. HIGHLY POPULATED
5. CEMETERIES *X* 6. HIGHWAYS
7. GRAVEL PITS *Active* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS *Sanitary landfill in southwest*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Possible town well west on Hook Rd. at county line.*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Extensive pines and gravel pits confirm aquifer type deposits. Long Hill observed to be composed of ice contact deposits and delineation extended to west. Landfill may limit potential to west. Area appears to be composed of favorable aquifer materials and has very good potential.*

O. CONTINUATIONS

LOCATION: *Newmarket*
AQUIFER: *Nm-2*
DATE: *8-19-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Entire area* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT *Glacial till.*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Low potential.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *60 - 80 ft.*

C. VEGETATION:

1. GROUND COVER *Sparse*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS *X*

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Piscassic River meets Folletts Brook at site.*

E. APPARENT SURFACE DRAINAGE *Eastward toward Lamprey River.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Outwash throughout.*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK *East of railroad tracks.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Marine type deposits at Durham line (possible till).*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *X* 6. HIGHWAYS
7. GRAVEL PITS *X* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Developed town of Newmarket east of site.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER *Developed town of Newmarket east of site.*

K. ADDITIONAL LOCAL INPUT *Town wells found to the northwest and east of cemetery.*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good through center and east; poor to west.*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area contains outwash deposits and is probably a flood plain. Outwash deposits observed adjacent to railroad tracks extend area to east. Extensive gravel pits west of Packers Falls Road may extend area to west. (Poor access limits confidence). Overall area has questionable potential dependent upon thickness of sandy deposits. Rivers may provide good recharge.*

O. CONTINUATIONS

LOCATION: *Newton, NH*
AQUIFER: *Ne-1*
DATE: *8-18-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH ____

c. MARINE ____ d. TILL *X*

e. MODIFICATIONS *Outwash deposits to north; Marine to east; till to west*

2. SOIL SURVEY ____

3. GOLDTHWAIT *Bedrock Geology of Haverhill Quad--area underlain by metamorphic rock. Surficial Geology of NH (map)--area shown as ice contact material with till area near Pine Hill*

B. POTENTIAL

1. WIEGAND: *Indicates area as most favorable for groundwater (potential yield **

2. COTTON: ____

C. OTHER: ____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY ____

3. FLAT FLOOD PLAIN ____ 4. HILLS *X*

5. OTHER *Possible "kame and kettle type" topography.*

B. ELEVATION: *150 - 200' MSL*

C. VEGETATION:

1. GROUND COVER *Tree covered, some grassed open areas.*

2. TREES

a. PINES ____ b. MIXED SMALL DIAMETER *X*

c. OTHER ____

D. SURFACE WATER

1. PONDS *X* 2. STANDING WATER IN LOW AREAS *X*

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS ____

5. LAKES ____ 6. SWAMPS ____

7. OTHER *Some swampy areas*

E. APPARENT SURFACE DRAINAGE *Generally towards South or to ponds and swamps in low lying areas.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact materials - medium - coarse sands, gravels, rounded stones up to 1-1½ ft. diameter; tan - brownish - yellow colored.*

2. OTHER DEPOSITS *Till observed in eastern portion; possible outwash material observed at western fringe of area, reddish-brown colored.*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Area surrounded by low hills*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES

1. SPARSE SINGLE DWELLINGS	X	2. SMALL BUSINESSES	X
3. DEVELOPING SUBDIVISIONS		4. HIGHLY POPULATED	
5. CEMETERIES		6. HIGHWAYS	
7. GRAVEL PITS	X	8. INDUSTRIES	
9. FARMS		10. SHOPPING CENTER	

11. OTHER *Public water supply (wells and pumpstation) in SW section of area.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS X
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#32 - SW gravel pit in public water supply area; #33 - SE gravel pit, looking south at ice contact material; #34 - SE gravel pit, looking***

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Field observations generally confirm delineation and information from literature. Southwestern portion is being used as existing water supply, so should be a good aquifer. Delineation extended to East due to observed gravel pits. Town dump (probably sanitary landfill) was observed in north central portion of area and may limit potential.*

O. CONTINUATIONS

* *is greater than 40gpm.*

** *north at till material.*

LOCATION: *North Hampton*
AQUIFER: *NH-1*
DATE: *8-10-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Entire area* b. OUTWASH

c. MARINE *Surrounds site.* d. TILL

e. MODIFICATIONS *More ice contact deposits to south.*

2. SOIL SURVEY

3. GOLDTHWAIT *Stratified gravel and sandy gravel.*

B. POTENTIAL

1. WIEGLE:
2. COTTON: *Most favorable as shown by Corps delineation.*

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY
3. FLAT FLOOD PLAIN 4. HILLS
5. OTHER

B. ELEVATION: *Approximately 80' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse grass*
2. TREES
   a. PINES b. MIXED SMALL DIAMETER *X*
   c. OTHER

D. SURFACE WATER

1. PONDS *3 small ones* 2. STANDING WATER IN LOW AREAS
3. SMALL STREAMS AND BROOKS *Cornelius Brook* 4. RIVERS
5. LAKES 6. SWAMPS
7. OTHER

E. APPARENT SURFACE DRAINAGE *Northwest direction; Knowles Pond through small brooks to Cornelius Brook to Winnicut River.*

F. PERMEABILITY OF SURFACE MATERIAL *Very good.*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact throughout area.*

2. OTHER DEPOSITS

H. BOUNDARY CONDITIONS
1. BEDROCK *Possible outcrops near golf course.*
2. SLOPING OFF OF TERRACE *Entire area.*
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *Few*
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *X* 6. HIGHWAYS *Rte. 95*
7. GRAVEL PITS *X (2)* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probably*
2. LANDFILLS *Stump dump near golf course.*
3. NEARBY SALT WATER *Atlantic Ocean about 2 miles away.*
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good for southern portion.*

N. OTHER OBSERVATIONS & CONCLUSIONS *Ice contact deposits found at site, sandy deposits found near North Hampton Center may indicate that aquifer is larger to south. Overall area has good aquifer potential.*

O. CONTINUATIONS

LOCATION: *Northwood, N.H.*
AQUIFER: *Nw-1*
DATE: *8-17-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report.*

2. SOIL SURVEY _____

3. OTHER *- Geology of Mt. Pawtuckaway Quad - at west edge of map - area underlain by metamorphic rock (Littleton Formation); 1-2 pegmatites nearby. Surficial Geology**

B. [illegible]

1. WEGLE: _____

2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS *X*

5. OTHER *Small ridges.*

B. ELEVATION: *520 - 660' MSL*

C. VEGETATION:

1. GROUND COVER *Forested, some cleared areas.*

2. TREES

a. PINES *1' diameter or less* b. MIXED SMALL DIAMETER _____

c. OTHER *Various types including Birch, Oak, Poplar*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____

5. LAKES *X* 5. SWAMPS _____

7. OTHER *Northwood Lake to north; Pleasant Lake to south.*

E. APPARENT SURFACE DRAINAGE *Towards the lakes.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact material - medium - coarse sands, gravels, rounded stones, cobbles, and small boulders; tan colored.*

2. OTHER DEPOSITS *Till - silty, fine sand, small angular and rounded stones, brown - reddish yellow colored.*

H. BOUNDARY CONDITIONS
1. BEDROCK *At southern fringe near Pleasant Lake; outside area to east.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Lakes to north and south; medium size hill to east.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS X 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS X 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Recreational area (lakes) with many seasonal type homes throughout area.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Ice contact material was excavated at least 20' in area to north of eastern edge of delineated aquifer. This material extended to edge of Northwood Lake. Delineation modified to include this area. As rock outcrops observed at southern end of aquifer near Pleasant Lake delineation they're slightly modified. Aquifer area is "bridge", between two good sized lakes. Lake water surface about 520' MSL and is probably close to groundwater elevation. If ice contact deposits are thick enough, area could be potentially very good aquifer.*

O. CONTINUATIONS

* *of N.H. (map) - till material; 1-2 very small ice contact deposits nearby.*

LOCATION: *Nottingham, N.H.*
AQUIFER: *No-1*
DATE: *8-16-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report.*

2. SOIL SURVEY _____

3. OTHER *Surficial Geology of N.H. (Map)-small scattered ice contact deposits, mostly till material. Geology of the Mt. Pawtuckaway Quad.-area underlain by**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Favorable potential as groundwater source.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Hummocky, gently rolling.*

B. ELEVATION: *140 - 200' MSL*

C. VEGETATION:

1. GROUND COVER *Forest, some open grassed areas*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER _____

c. OTHER *Mixed types of various sizes*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *North River flows along northern fringe of area; some swamps to south & west.*

E. APPARENT SURFACE DRAINAGE *Toward North River in north and east; towards streams and swampy areas to west and south.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Surface till, some large boulders, silt , gravel, fine-medium sand, rounded and angular stones; light brown colored.*

2. OTHER DEPOSITS *Possible swamp deposits around Smith State Forest.*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS *To south.*
4. OTHER *Hill to west; North River to north and east.*
5. UNABLE TO DISTINGUISH *area to north near Merellis Road and North River.*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS x 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *A few new homes being built.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good except along North River.*

N. OTHER OBSERVATIONS & CONCLUSIONS *No excavations greater than 1-2' deep were observed in this area. With no information on subsurface conditions, it is difficult to come to any definite conclusions. Possible kame in southeast portion of area. 1-2 possibly shallow wells observed. Area probably has a fair to poor potential as a groundwater source depending upon extent and thickness of ice contact material shown by Goldthwait.*

O. CONTINUATIONS

* *metamorphic rock (Berwick Formation).*

LOCATION: *Nottingham, N.H.*
AQUIFER: *No-2*
DATE: *8-16-78*

I. LITERATURE REVIEW
A. DEPOSITS (PREDOMINANT)
1. BRADLEY
a. ICE CONTACT _____ b. OUTWASH _____
c. MARINE _____ d. TILL _____
e. MODIFICATIONS *Not covered by Bradley Report.*

2. SOIL SURVEY _____

3. OTHER *- Geology of Mt. Pawtuckaway Quad-west portion underlain by igneous rock; east portion underlain by metapormpic rock. Surficial Geology of N.H. (map)**

B. POTENTIAL
1. WIEGLE: _____
2. COTTON: *Portions of area favorable potential for groundwater; other parts* **

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY
1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____
3. FLAT FLOOD PLAIN _____ 4. HILLS _____
5. OTHER *Terrace-hummocky; small, irregular hills at northwest and southeast ends;****

B. ELEVATION: *140 - 200' MSL*

C. VEGETATION:
1. GROUND COVER *Forested, some open grassed areas.*
2. TREES
a. PINES *1-2' diameter* b. MIXED SMALL DIAMETER _____
c. OTHER *Mixed other types.*

D. SURFACE WATER
1. PONDS _____ 2. STANDING WATER IN LOW AREAS *X*
3. SMALL STREAMS AND BROOKS *X* 4. RIVERS *X*
5. LAKES _____ 6. SWAMPS _____
7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Towards Little River.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY
1. PREDOMINATE DEPOSIT *Ice contact material - medium-coarse sands, gravels, rounded stones, reddish-yellow to light tan colored.*

2. OTHER DEPOSITS *Possible ground morraine material along fringes and on hills; fine-medium sand in lower areas near river.*

H. BOUNDARY CONDITIONS
1. BEDROCK *Ledge outcrops observed to east of area.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Hills along either side of river.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS X 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *a few new homes being built.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Local man said most wells in bedrock, well depth varies from 60' to 500'.*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good.*

N. OTHER OBSERVATIONS & CONCLUSIONS *New Pond (man-made) exists to north of Mill Pond Road - not shown in USGS Quad. Field observations generally confirm overall delineation, with minor modifications due to active sand and gravel pits found. Ice contact deposits appear to be extensive, with some outwash material present. However, thickness of deposits unknown, and may vary considerably. The potential groundwater yield of this aquifer could be good to fair, depending upon the thickness of the ice contact and outwash deposits.*

O. CONTINUATIONS

* *some ice contact deposits surrounded by till material.*

** *generally unfavorable.*

*** *steep river bank area in between.*

LOCATION: Nottingham, N.H.
AQUIFER: No-3
DATE: 8-16-78

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report.*

2. SOIL SURVEY _____

3. OTHER *Surficial Geology of NH (map)-outwash deposit, with small area of ice contact material. Geology of Mt. Pawtuckaway Quad-area underlain by igneous**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Favorable potential for groundwater supplies.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN X 4. HILLS _____

5. OTHER _____

B. ELEVATION: *240 - 260' MSL*

C. VEGETATION:

1. GROUND COVER *Tree covered*

2. TREES

a. PINES *1' diameter* b. MIXED SMALL DIAMETER _____

c. OTHER *Various types*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS X 4. RIVERS X

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Towards and into North River.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Reddish-yellow, fine-coarse sands, some small pebbles.*

2. OTHER DEPOSITS *Ground morraine till - silt, sand, gravel, anguiar and rounded stones.*

H. BOUNDARY CONDITIONS
1. BEDROCK *Possible ledge outcrop along northeast fringe of area.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Tilly hills to east*
5. UNABLE TO DISTINGUISH *X*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Few small farms, few new houses being built; Town "Highway Dept" sand***

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESS BILITY *Fair to good*

N. OTHER OBSERVATIONS & CONCLUSIONS *No excavations found in this site greater than 2-3' deep. It was very difficult to determine limits of this potential aquifer. Field observations tend to support Cotton's note that "Favorable" aquifer areas are composed of medium-coarse sands. He shows aquifer shifted more to west - with eastern boundary running along Rte. 152. Topography observed agrees with this - small, tilly, relatively steep hills and possible ledge to east. Geology map also notes Pegmatites in this area. Delineation has been moved westward in this area. Depending upon thickness of sand deposits, this area probably has a medium to poor groundwater potential.*

O. CONTINUATIONS

* *rock; some pegmatites in area.*

** *piles near North River.*

LOCATION: *Plaistow, N.H.*
AQUIFER: *Pl-1*
DATE: *8-11-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Till to north; marine deposits along streams in and around area.*

2. SOIL SURVEY _____

3. OTHER *Bedrock Geology of Haverhill Quad - area underlain by metamorphic rock; possible granite formation on hill to north. Surficial Geology of N.H. (map)**

B. POTENTIAL

1. WIEGLE: *Indicates area as most favorable (potential yield ≥ 40gpm)*

2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY *X*

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER _____

B. ELEVATION: *110 - 150' MSL*

C. VEGETATION:

1. GROUND COVER *Grass with some trees*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Toward small streams in central and southern portions of area.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Unsorted ice contact material: sand, gravel, rounded stones, light tan colored.*

2. OTHER DEPOSITS *Traces of surficial till material.*

H. BOUNDARY CONDITIONS
1. BEDROCK *Mass - N.H. line to south.*
2. SLOPING OFF OF TERRACE *towards streams.*
3. MARSH DEPOSITS *Possibly along streams and swamp to northeast of area.*
4. OTHER
5. UNABLE TO DISTINGUISH *boundaries to west and northwest.*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS *Rte. 495 nearby*
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Small subdivision of Rte 108 in eastern portion.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *No excavations greater than 2-3 ft. in depth, thus hard to assess aquifer potential. Field observations generally confirm delineation and information from literature. Possible connection underlying adjacent western and northern marine deposits to Pl-2. Several small ponds located nearby outside area. Potential of aquifer in area is uncertain.*

O. CONTINUATIONS

* *area shown as ground morrainè till.*

LOCATION: *Plaistow, N.H.*
AQUIFER: *Pl-2*
DATE: *8-11-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH

c. MARINE d. TILL

e. MODIFICATIONS *Swamp deposits to northwest, outwash to north and west, till to south.*

2. SOIL SURVEY

3. OTHER *Bedrock Geology of Haverhill Quad - area underlain by metamorphic rock*
*Surfi ial Geology of NH (map)-area is ice contact material with outwash material**

B. POTENTIAL

1. WIEGLE: *Indicates area as most favorable (potential yield ≥ 40gpm)*
2. COTTON:

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE 2. FILLED IN VALLEY *X*
3. FLAT FLOOD PLAIN 4. HILLS
5. OTHER

B. ELEVATION: *100 - 105' MSL*

C. VEGETATION:

1. GROUND COVER *Grass and Forest cover*
2. TREES
a. PINES b. MIXED SMALL DIAMETER
c. OTHER *Varying types and sizes*

D. SURFACE WATER

1. PONDS *X* 2. STANDING WATER IN LOW AREAS *X*
3. SMALL STREAMS AND BROOKS *X* 4. RIVERS
5. LAKES 6. SWAMPS *X*
7. OTHER

E. APPARENT SURFACE DRAINAGE *Towards swamps to northwest and east*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact material - large amount of sand, also gravel and rounded stones; buff colored.*

2. OTHER DEPOSITS *Isolated till material in south, swamp deposits to northwest, outwash deposits between Pl-2 and Pl-3 to west.*

H. BOUNDARY CONDITIONS
1. BEDROCK *Ledge outcrops outside area to northeast.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS *to northwest between P1-2 and P1-3*
4. OTHER *Steep hills to east and south*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES X
3. DEVELOPING SUBDIVISIONS X
4. HIGHLY POPULATED
5. CEMETERIES
6. HIGHWAYS
7. GRAVEL PITS X
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Apply to both P1-2 and P1-3. A number of gravel pits exist throughout area, many currently active. Proposed that outwash deposits in west and southwest and swamp deposits to northwest separating P1-2 and P1-3 overlie ice contact material. If so, P1-2 and P1-3 would be part of same aquifer. Field observations generally confirmed delineation and information from literature, except in northwest where aquifers joined as noted above. Area is rapidly developing. As groundwater level is relatively high, area has good potential for aquifer depending on thickness of ice contact deposits.*

O. CONTINUATIONS

* *around it.*

LOCATION: *Plaistow, N.H.*
AQUIFER: *Pl-3*
DATE: *8-11-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Marine to southwest; till to northwest; outwash to north and south; and swamp to east.*

2. SOIL SURVEY _____

3. OTHER *Bedrock Geology of Haverhill Quad-area underlain by metamorphic rock, with Pegmatite deposit to northwest. Surficial Geology of N.H. (map)- area is made up of ice contact and outwash materials.*

B. POTENTIAL

1. WIEGLE: *Area ranges from Favorable to Most Favorable with yield of 10 to over**

2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY *X*

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Possible Kame and Kettle type topography.*

B. ELEVATION: *100 - 120' MSL*

C. VEGETATION:

1. GROUND COVER *Trees, thick brush, grass.*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER *X*

c. OTHER _____

D. SURFACE WATER

1. PONDS *X* 2. STANDING WATER IN LOW AREAS *X*

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS *to east*

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *To Little River and swamp.*

F. PERMEABILITY OF SURFACE MATERIAL *Poor near and in swamp; good otherwise.*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact material throughout area-sands, gravel, rounded stones; light tan colored.*

2. OTHER DEPOSITS *Outwash material seen at fringes in southern portion of area.*

H. BOUNDARY CONDITIONS

1. BEDROCK *Outcrops seen outside area to north (along Crane Crossing Rd)*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS *X*
4. OTHER *Area surrounded by hills to west and south.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES

1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES *X*
3. DEVELOPING SUBDIVISIONS *X*
4. HIGHLY POPULATED
5. CEMETERIES
6. HIGHWAYS
7. GRAVEL PITS *Some active*
8. INDUSTRIES *Lumber company*
9. FARMS
10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES

1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Resident told us most demestic supplies are shallow (10') dug wells tapping springs; also much new development is occurring.*

L. DESCRIPTION OF PHOTOS *#18 -Gravel Pit - southeast section. #19 - Gravel mound - northwest top of PL-2.*

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *See comments for P1-2*

O. CONTINUATIONS

* *40 gpm.*

LOCATION: *Plaistow, NH*
AQUIFER: *P1-4*
DATE: *8-11-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH *X*

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Till at western edge.*

2. SOIL SURVEY _____

3. OTHER *Bedrock Geology of Haverhill Quad-area underlain by metamorphic rock. Surfical Geology of NH (map)-area is shown as outwash deposit.*

B. POTENTIAL

1. WIEGLE: *Area with most wells adequate for domestic use; potential yield ≤ 10 gpm.*
2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____
3. FLAT FLOOD PLAIN _____ 4. HILLS *X*
5. OTHER _____

B. ELEVATION:

C. VEGETATION:

1. GROUND COVER *Forest*
2. TREES
   a. PINES _____ b. MIXED SMALL DIAMETER _____
   c. OTHER *Mixed types of varying sizes.*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____
3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____
5. LAKES _____ 6. SWAMPS _____
7. OTHER *Swampy areas and streams on fringes of area.*

E. APPARENT SURFACE DRAINAGE *Toward surrounding low areas.*

F. PERMEABILITY OF SURFACE MATERIAL *Fair*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Till - silt, fine-medium sand, gravel, angular and rounded stones, some boulders; light tan-buff colored.*

2. OTHER DEPOSITS *Outwash sand and silt due to erosion of till material located in southeast fringe.*

H. BOUNDARY CONDITIONS
1. BEDROCK *possible outcrops throughout area.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH *X*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Subdivisions and small businesses along roads near area.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Resident told us most older wells are shallow dug type; now trend is to go into bedrock for new wells.*

L. DESCRIPTION OF PHOTOS *#20-Flat area within east side (typical);#21 - small pit; #22 - looking west from Main Street.*

M. ACCESSIBILITY *Poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *The only excavations were a couple of small pits, 4-5' deep. No sandy material observed except that eroded from till in one area. As a good amount of till material and possible ledge outcrops were observed, outwash deposits (if any) are probably not too thick. The groundwater potential for this aquifer appears to be very low, and this area should probably be eliminated from map. A potential aquifer area does exist to the northeast where several gravel pits containing what appeared to be ice contact material were observed. Literature sources also indicate that this location could be a most favorable aquifer. It is suggested that this area should be further investigated.*

O. CONTINUATIONS

LOCATION: *Portsmouth, N.H.*
AQUIFER: *Po-1; Po-2; Po-3*
DATE: *8-22-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Marine deposits to west and south; till to north; swamp, marine, outwash, till all along east and northeast edge of area.*

2. SOIL SURVEY _____

3. OTHER *Geology of the Seacost Region, NH (map)-area underlain by metamorphic rock (Elliot & Kittery Formations). Surficial Geology of NH (map)-ice contact**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Most favorable for groundwater - 2 wells, 1 yields 700gpm, 1 yields 400gpm.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER _____

B. ELEVATION: *60 - 80' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse grass*

2. TREES

a. PINES *Some* b. MIXED SMALL DIAMETER *Some*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6.SWAMPS _____

7. OTHER *some streams and brooks and swampy areas on fringes.*

E. APPARENT SURFACE DRAINAGE *Away from area all directions into small streams and brooks to larger area rivers.*

F. PERMEAB ILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact (stratified sandy with rounded gravel), possible outwash.*

2. OTHER DEPOSITS *Surficial till, some clean outwash.*

H. BOUNDARY CONDITIONS
1. BEDROCK *or till to south and along Spaulding Turnpike.*
2. SLOPING OFF OF TERRACE *north and west*
3. MARSH DEPOSITS *fringes on the north*
4. OTHER
5. UNABLE TO DISTINGUISH *Lack of road plan made determination of boundaries difficult.*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES *South*
6. HIGHWAYS *Rte 95, Spaulding Tpke*
7. GRAVEL PITS
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER *Air Force Base-Military facilities, developments to south. Water towers***

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL
2. LANDFILLS *Sanitary northeast of Pannaway Manor; Dump pit.*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER *Portsmouth to the east.*

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *No road plan made determination of where we were in the field difficult.*

N. OTHER OBSERVATIONS & CONCLUSIONS *Ice contact material verified in field, boundaries difficult to confirm, potential pollution from Air Base exists. Area appears to be existing and potentially good aquifer based on encountered soil deposits and literature.*

O. CONTINUATIONS

* *deposits; outwash deposits to south.*

** *within base.*

LOCATION: *Raymond*
AQUIFER: *Ra-1*
DATE: *8-19-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT *Stratified gravel and sandy gravel throughout.*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Most favorable throughout.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN *X* 4. HILLS _____

5. OTHER _____

B. ELEVATION: *River - 175'; Plain = 200'*

C. VEGETATION:

1. GROUND COVER *Very sparse*

2. TREES

a. PINES _____ b. MIXED SMALL DIAMETER _____

c. OTHER *Few scrub trees*

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *Through site* 4. RIVERS *Lamprey runs through**

5. LAKES _____ 6. SWAMPS _____

7. OTHER *Onway Lake to west feeds intersecting stream.*

E. APPARENT SURFACE DRAINAGE *Northeast through river and stream system.*

F. PERMEABILITY OF SURFACE MATERIAL *Very good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Outwash throughout (some oxidation of soil observed in southeast.*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK *and till observed in hills to southwest, southeast and northwest.*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *within aquifer* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS *Active* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Railroad, town to east*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Sewage system in construction*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Possible town well located in central gravel pit.*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *This area appears to have good potential as an aquifer. The sandy nature of the material and the waters running through the site indicate a high water table near the ground surface, observed sand to south extends area. Runoff from Dumplingtown Hill and other hills in the area, along with Onway Lake probably recharge the aquifer.*

O. CONTINUATIONS

* *the site.*

LOCATION: *Rochester*
AQUIFER: *Ro-1*
DATE: *8-25-78*

I. LITERATURE REVIEW
A. DEPOSITS (PREDOMINANT)
1. BRADLEY
a. ICE CONTACT *Throughout general area.* b. OUTWASH
c. MARINE d. TILL
e. MODIFICATIONS *Outwash to southwest, till to northwest.*

2. SOIL SURVEY *Hinckley-Windsor-Woodbridge Association*

3. GOLDTHWAIT *Entire area stratified sand and silts, some ice contact deposits just north of area.*

B. POTENTIAL
1. WIEGLE:
2. COTTON: *Area as shown has low potential and comprised of till and bedrock,**

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY
1. FLAT TERRACE *X* 2. FILLED IN VALLEY
3. FLAT FLOOD PLAIN 4. HILLS
5. OTHER

B. ELEVATION: *160 - 200'*

C. VEGETATION:
1. GROUND COVER *Sparse grass*
2. TREES
a. PINES *Some* b. MIXED SMALL DIAMETER *Some*
c. OTHER

D. SURFACE WATER
1. PONDS 2. STANDING WATER IN LOW AREAS
3. SMALL STREAMS AND BROOKS 4. RIVERS
5. LAKES 6.SWAMPS
7. OTHER *No surface water observed.*

E. APPARENT SURFACE DRAINAGE *Southeast, to either Cocheco or Isinglass River.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY
1. PREDOMINATE DEPOSIT *Clean fine-medium sand, ice contact layer overlaying.*

2. OTHER DEPOSITS

H. BOUNDARY CONDITIONS
1. BEDROCK *Southeast of site, small isolated "island" where outcrops observed.*
2. SLOPING OFF OF TERRACE *Throughout.*
3. MARSH DEPOSITS *Along Cocheco River*
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS *Extensive* 8. INDUSTRIES
9. FARMS *To south* 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER *Developed Rochester area to north.*

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#23 - Central gravel pit.*

M. ACCESSIBILITY

N. OTHER OBSERVATIONS & CONCLUSIONS *Extensive gravel pits and lack of surface drainage features confirm ice contact type materials; ledge southeast of site indicates area not connected to Ba-2. Area appears to have good potential as aquifer. Area may extend to north along Cocheco River and Isinglass River.*

O. CONTINUATIONS

* *area surrounded by possible potential area to east and good potential to west.*

LOCATION: *Rochester, N.H.*
AQUIFER: *Ro-2*
DATE: *8-24-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *West of Rochester* b. OUTWASH *Rochester and east**

c. MARINE ____ d. TILL ____

e. MODIFICATIONS *Area surrounded by Till material.*

2. SOIL SURVEY *Soils in the area are made up of those from Hinckley-Windsor-Saugatuck Association, consisting of outwash and ice contact materials.*

3. GOLDTHWAIT *indicates ice contact and outwash materials throughout this area.*

B. POTENTIAL

1. WIEGLE: ____

2. COTTON: *indicates area has favorable to most favorable potential as groundwater source.*

C. OTHER ____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY ____

3. FLAT FLOOD PLAIN ____ 4. HILLS ____

5. OTHER ____

B. ELEVATION: *160 - 300'MSL*

C. VEGETATION:

1. GROUND COVER ____

2. TREES

a. PINES *some* b. MIXED SMALL DIAMETER *some*

c. OTHER *Area is heavily developed with much open or grassed areas.*

D. SURFACE WATER

1. PONDS ____ 2. STANDING WATER IN LOW AREAS *X*

3. SMALL STREAMS AND BROOKS *X* 4. RIVERS *Cocheco River*

5. LAKES ____ 6. SWAMPS ____

7. OTHER *Some swampy areas near river*

E. APPARENT SURFACE DRAINAGE *Towards Cocheco River*

F. PERMEABILITY OF SURFACE MATERIAL *Very good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact material-sometimes stratified layers; reddish-yellow-brown colored, medium-coarse sands, gravels, stones, cobbles, boulders -***

2. OTHER DEPOSITS *Till material-assorted sand, gravel, silt, angular and rounded stones and large boulders. Outwash-fine-medium sands, some gravel and pebbles,****

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Till deposits observed to west and east, some to north.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES *X*
3. DEVELOPING SUBDIVISIONS *X*
4. HIGHLY POPULATED *X*
5. CEMETERIES
6. HIGHWAYS *Rte's 1., 16, 125, 202, ****
7. GRAVEL PITS *X active, numerous*
8. INDUSTRIES *X*
9. FARMS
10. SHOPPING CENTER *X*
11. OTHER *Some new homes and businesses being built.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X - in more rural areas*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES *Possible-several large industries located within area; pollution*****
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS *#24 - till deposit at excavation near Melrose Corners.*
#25 - Stratified sand and ice contact material at gravel pit near Melrose Corners.

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *This area has very extensive sand and gravel mining operations throughout it. A good deal of outwash and ice contact material is definitely located here. The southeastern portion in and around Rochester is highly developed and built up, mostly residential and small urban businesses. There are also a number of apartment buildings and some industries. This portion may have pollution problems and/or may be unsuitable for well development. However, the northern and western portions are probably excellent for the development as an aquifer: ice contact deposits apparently thick, Cocheco River runs through area providing possibility of recharge for aquifer. Area is sparsely settled outside Rochester and Farmington. This area should be rated very highly as potential aquifer. Refer to Bradley notes #72 and #83 for more information.*

O. CONTINUATIONS

* *of city.*

** *up to 1-2' diameter.*

*** *yellow-brown colored; usually stratified.*

**** *Spaulding Turnpike.*

***** *disposal. Could be problem.*

LOCATION: *Rochester, N.H.*
AQUIFER: *Ro-3 and Ro-4*
DATE: *8-24-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *X - Ro-4* b. OUTWASH *X - Ro-3*

c. MARINE ____ d. TILL ____

e. MODIFICATIONS *Till to south and west.*

2. SOIL SURVEY *Area soils are from Hinckley-Windsor-Saugatuck Association - consisting of ice contact and outwash materials.*

3. GOLDTHWAIT - *indicates area along Salmon Falls River as outwash material with one small ice contact deposit at about where site Ro-3 is located.*

B. POTENTIAL

1. WIEGLE: ____

2. COTTON: *Indicates areas have most favorable potential for groundwater sources.*

C. OTHER ____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY ____

3. FLAT FLOOD PLAIN *adjacent to river* 4. HILLS ____

5. OTHER ____

B. ELEVATION: *180 - 260' MSL*

C. VEGETATION:

1. GROUND COVER *Forest, open areas*

2. TREES

a. PINES *Some* b. MIXED SMALL DIAMETER ____

c. OTHER *Mixed types of various sizes.*

D. SURFACE WATER

1. PONDS ____ 2. STANDING WATER IN LOW AREAS ____

3. SMALL STREAMS AND BROOKS ____ 4. RIVERS *X*

5. LAKES ____ 6. SWAMPS ____

7. OTHER ____

E. APPARENT SURFACE DRAINAGE *Toward Salmon Falls River*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Surface till - silt, sand, stones, some boulders.*

2. OTHER DEPOSITS *Possible ice contact or outwash material - sand, gravel, small stones - reddish brown - orange colored.*

H. BOUNDARY CONDITIONS
1. BEDROCK
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH *X*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *X 1-2 small ones* 6. HIGHWAYS
7. GRAVEL PITS 8. INDUSTRIES
9. FARMS *X - most of area* 10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Poor*

N. OTHER OBSERVATIONS & CONCLUSIONS *No roads into areas that could be travelled except by 4-wheeled drive. The only excavations found were shallow surface type - 2-3 ft. in depth. Some possible ice contact material (very sandy so could have been outwash) was seen - being used as fill for new house. It appeared this material had been brought in, but nothing definite could be determined. The topograpy tends to confirm Bradley's contention that this area could be a kame terrace. There is a possible drumlin to southwest of Area Ro-4. Difficult to assess these sites - other than to agree with literature that, provided these deposits exist and are thick enough, they could provide a potentially good aquifer.*

O. CONTINUATIONS

LOCATION: *Rye, N.H.*
AQUIFER: *Ry-1*
DATE: *8-10-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT-*conrirms ice contact deposits in western portion of site, however, does not show area extending to ocean.*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Majority of site most favorable.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Some rolling hills within.*

B. ELEVATION: *40' to 100' MSL*

C. VEGETATION:

1. GROUND COVER *Mostly grass*

2. TREES

a. PINES *Some* b. MIXED SMALL DIAMETER _____

c. OTHER _____

D. SURFACE WATER

1. PONDS *on south fringe* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *on south fringe* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Small streams and brooks on the fringes of the aquifer take surface water away from site.*

F. PERMEABILITY OF SURFACE MATERIAL *Very good.*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact observed in gravel pits throughout.*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK *Outcrops to northwest toward Breakfast Hill.*
2. SLOPING OFF OF TERRACE *Entire site*
3. MARSH DEPOSITS *To the south and north border site.*
4. OTHER *Ocean to east.*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *X*
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES *X* 6. HIGHWAYS
7. GRAVEL PITS *Several* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Landing strips and trailer park*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Yes*
2. LANDFILLS *Existing landfill at Breakfast Hill*
3. NEARBY SALT WATER *Yes*
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Some shallow wells*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Very good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area represents kame plain. Conformation of ice contact deposits found throughout; adjacent ocean in east may limit productivity of eastern section. Lack of surface drainage features implies well drained soils. Area probably has a high potential as a groundwater source.*

O. CONTINUATIONS

LOCATION: *Rye, N.H.*
AQUIFER: *Ry-2*
DATE: *8-10-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY _____

3. GOLDTHWAIT *- shows area as till with two small isolated areas of ice contact type material.*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Favorable*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *X* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER _____

B. ELEVATION: *Majority at 60'*

C. VEGETATION:

1. GROUND COVER *Sparse*

2. TREES

a. PINES *Majority* b. MIXED SMALL DIAMETER *Some*

c. OTHER _____

D. SURFACE WATER

1. PONDS *One small one* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *on fringes* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *Southeast direction along small streams to ocean.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact to west.*

2. OTHER DEPOSITS *Marsh deposits to east.*

H. BOUNDARY CONDITIONS
1. BEDROCK *Observed at southeast.*
2. SLOPING OFF OF TERRACE *Throughout.*
3. MARSH DEPOSITS *To east along coast.*
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X 2. SMALL BUSINESSES X
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES X 6. HIGHWAYS *Rte. 1A*
7. GRAVEL PITS X 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Restaurants, Motels, etc.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *Probable*
2. LANDFILLS
3. NEARBY SALT WATER *Yes*
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT *Shallow wells in area*

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Lack of surface drainage features indicate area to be free draining. Observed sandy deposits near cemeteries extend area to northwest; observed outcrops along Harbor Road eliminate some area to east. Aquifer may be connected at a lower level to Ry-1. Overall area appears to have good aquifer potential.*

O. CONTINUATIONS

LOCATION: *Sandown, NH*
AQUIFER: *Sd-1*
DATE: *8-17-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Not covered by Bradley Report*

2. SOIL SURVEY _____

3. GOLDTHWAIT *A number of ice contact deposits within area, surround by till. Geology of Haverhill 15' Quad, Seacoast Region NH--area underlain by metamorphic rock**

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Indicates area as a favorable potential for a groundwater source*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Flat-gently rolling low land*

B. ELEVATION: *200-220' MSL*

C. VEGETATION:

1. GROUND COVER *Forested*

2. TREES

a. PINES *Some* b. MIXED SMALL DIAMETER *Some*

c. OTHER _____

D. SURFACE WATER

1. PONDS *Showell Pond* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS *1-2 drain to Phillips P* 4. RIVERS _____

5. LAKES _____ 6. SWAMPS *In southern portion*

7. OTHER *Phillips Pond on east edge, large swamp to southwest*

E. APPARENT SURFACE DRAINAGE *To pond and swamps*

F. PERMEABILITY OF SURFACE MATERIAL *Good except around swamps where poor*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Outwash material--stratified, whitish-orange fine-medium sands*

2. OTHER DEPOSITS *Ground morraine till; some ice contact material medium-coarse sands, gravel, small rounded stones*

H. BOUNDARY CONDITIONS
1. BEDROCK *Ledge outcrops observed to west*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Pond to east and swamps to south*
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS X
2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS
4. HIGHLY POPULATED
5. CEMETERIES
6. HIGHWAYS
7. GRAVEL PITS
8. INDUSTRIES
9. FARMS
10. SHOPPING CENTER
11. OTHER *Some new homes being built; mostly residential or recreation houses*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL X
2. LANDFILLS *Dump about ½ mile to east of site*
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Field observations generally confirmed delineation in north and west. Delineation modified in south by swamps and pond. Aquifer could possibly extend to notheast around Phillips Pond.*
Soil under ground morraine was mostly fine-medium sand; little or no ice contact material was observed. Depending upon thickness of deposits, this area probably has a good to fair rating as a potential aquifer. Phillips Pond should provide a potential source for recharge of the aquifer.

O. CONTINUATIONS

* *(Elliot Formation)*

LOCATION: *Somersworth, NH*
AQUIFER: *So-1*
DATE: *8-24 & 25-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Extensive deposits* b. OUTWASH

c. MARINE d. TILL

e. MODIFICATIONS *Some outwash and marine deposits to South, West, and East; mostly surrounded by till material*

2. SOIL SURVEY *Area soils made up of Hinckley-Windsor-Saugatuck Association, which generally consists of ice contact and outwash materials*

3. GOLDTHWAIT *Area primarily extensive ice contact deposits surrounded by outwash*

B. POTENTIAL

1. WIEGLE:

2. COTTON: *Indicates most favorable as potential groundwater source; a number of high yield wells already exist in this area.*

C. OTHER

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE 2. FILLED IN VALLEY

3. FLAT FLOOD PLAIN 4. HILLS

5. OTHER *Flat-gently rolling plateau*

B. ELEVATION:

C. VEGETATION:

1. GROUND COVER *Built up area, mostly grassed or paved open spaces*

2. TREES

a. PINES b. MIXED SMALL DIAMETER

c. OTHER

D. SURFACE WATER

1. PONDS *3 small-medium* 2. STANDING WATER IN LOW AREAS

3. SMALL STREAMS AND BROOKS *Several* 4. RIVERS

5. LAKES 6. SWAMPS

7. OTHER *Salmon Falls River to North of area; numerous small ponds and streams**

E. APPARENT SURFACE DRAINAGE *In all directions off of plateau*

F. PERMEABILITY OF SURFACE MATERIAL *Good where grass, soil exists; poor in tilly and paved areas*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact material-sometimes stratified, medium-coarse sand, gravel, rounded stones and cobbles*

2. OTHER DEPOSITS *Till; outwash material--fine-medium stratified sand*

H. BOUNDARY CONDITIONS
1. BEDROCK *To North near Lily Pond*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Till, hills to East and North; River to North (Clay-silt material observed)*
5. UNABLE TO DISTINGUISH *Non-aquifer areas within delineation; limits of aquifer to West and South*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS
2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS *Some*
4. HIGHLY POPULATED *X*
5. CEMETERIES *Several large and small*
6. HIGHWAYS *Spaulding Turnpike; Rtes 9,***
7. GRAVEL PITS *a number in South*
8. INDUSTRIES *a number near highways*
9. FARMS
10. SHOPPING CENTER
11. OTHER

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL
2. LANDFILLS *At gravel pit site along Blackwater Road*
3. NEARBY SALT WATER
4. INDUSTRIES *Possible pollution sources--no definite information*
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *This area has extensive ice contact deposits throughout it, with a number of active gravel pits. Assuming the possiblity of recharge from nearby Salmon Falls River, the area has excellent groundwater potential. However, there are a number of factors that could limit this potential. Refering to Cotton, at least four sites within this aquifer are already yielding high amounts of groundwater (roughly approximately 2100 gpm). The area is highly built up with residential, commercial, and industrial developments. Although sewerage exists within Somersworth, it is possible that some outlying areas may not be serviced (no evidence of sewer lines was observed in several areas). The waste disposal methods of the industries near the Spaulding Turnpike are unknown and a former gravel pit in the Southeast portion of this aquifer is being used as a sanitary landfill. Thus,****

O. CONTINUATIONS

* *at fringes*

** *Routes 16, 16A, 16B*

*** *although this site has an excellent potential as an aquifer, current groundwater withdrawals and possible pollution sources may limit additional development.*

LOCATION: *Stratham*
AQUIFER: *St-1*
DATE: *8-23-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY

a. ICE CONTACT *Throughout* b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS *Some extention to southwest.*

2. SOIL SURVEY _____

3. GOLDTHWAIT *- entire area ice contact deposits (same as Bradley)*

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: *Possible area.*

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE _____ 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER *Elevated ridge, some hills within*

B. ELEVATION: *100 - 150' MSL*

C. VEGETATION:

1. GROUND COVER *Sparse grass*

2. TREES

a. PINES *Some* b. MIXED SMALL DIAMETER *Some*

c. OTHER _____

D. SURFACE WATER

1. PONDS _____ 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES _____ 6. SWAMPS _____

7. OTHER *None observed*

E. APPARENT SURFACE DRAINAGE *Away from site.*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Ice contact observed throughout.*

2. OTHER DEPOSITS _____

H. BOUNDARY CONDITIONS
1. BEDROCK *Possible bedrock east of shcool and hill just west of First Bend**
2. SLOPING OFF OF TERRACE *throughout site.*
3. MARSH DEPOSITS
4. OTHER
5. UNABLE TO DISTINGUISH

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES
3. DEVELOPING SUBDIVISIONS *X* 4. HIGHLY POPULATED
5. CEMETERIES *X* 6. HIGHWAYS
7. GRAVEL PITS *X* 8. INDUSTRIES
9. FARMS *X* 10. SHOPPING CENTER
11. OTHER *Small subdivision about ¼ mile east of Memorial School.*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER

K. ADDITIONAL LOCAL INPUT

L. DESCRIPTION OF PHOTOS

M. ACCESSIBILITY *Good*

N. OTHER OBSERVATIONS & CONCLUSIONS *Area represents Esker type formation; sand, ice contact type materials found in gravel pit cuts. Possible outcrop deposits observed in hill area west of first large southern bend in Bunker Hill Ave. Sandy material observed west of southwest Corps delineation, area appears to be composed of ice contact deposit type soils and should be a good aquifer if deposits have sufficient depth. Lack of surface drainage features indicates free draining soil.*

O. CONTINUATIONS

* *in Bunker Hill Avenue.*

LOCATION: *Wakefield*
AQUIFER: *Wa-1, Wa-2, Wa-3, Wa-4, Wa-5**
DATE: *8-24-78*

I. LITERATURE REVIEW

A. DEPOSITS (PREDOMINANT)

1. BRADLEY *Not covered*

a. ICE CONTACT _____ b. OUTWASH _____

c. MARINE _____ d. TILL _____

e. MODIFICATIONS _____

2. SOIL SURVEY *Not covered*

3. GOLDTHWAIT *Boulder train area, Wa-4 (South Bank) and western portion of Wa-5 are ice contact type, Wa-2 and Wa-3 are outwash, Wa-1. The majority of the site***

B. POTENTIAL

1. WIEGLE: _____

2. COTTON: _____

C. OTHER _____

II. FIELD INVESTIGATION

A. TOPOGRAPHY

1. FLAT TERRACE *Majority of areas* 2. FILLED IN VALLEY _____

3. FLAT FLOOD PLAIN _____ 4. HILLS _____

5. OTHER _____

B. ELEVATION: *500 - 700'*

C. VEGETATION:

1. GROUND COVER *Pine forest type, flat areas grass*

2. TREES

a. PINES *Throughout* b. MIXED SMALL DIAMETER *some*

c. OTHER _____

D. SURFACE WATER

1. PONDS *X* 2. STANDING WATER IN LOW AREAS _____

3. SMALL STREAMS AND BROOKS _____ 4. RIVERS _____

5. LAKES *Adjacent* 6. SWAMPS _____

7. OTHER _____

E. APPARENT SURFACE DRAINAGE *From hilly areas to lakes*

F. PERMEABILITY OF SURFACE MATERIAL *Good*

G. GEOLOGY

1. PREDOMINATE DEPOSIT *Sandy outwash, ice contact, some sandy till observed in steep areas (very little silt and clay in till)*

2. OTHER DEPOSITS _____

Wa-1, Wa-2, Wa-3,
Wa-4 and Wa-5

H. BOUNDARY CONDITIONS
1. BEDROCK *Outcrops in slopes of adjacent hills*
2. SLOPING OFF OF TERRACE
3. MARSH DEPOSITS
4. OTHER *Bordered by lakes.*
5. UNABLE TO DISTINGUISH *Exact boundaries due to poor access.*

I. MANMADE FEATURES
1. SPARSE SINGLE DWELLINGS *X* 2. SMALL BUSINESSES *very few*
3. DEVELOPING SUBDIVISIONS 4. HIGHLY POPULATED
5. CEMETERIES 6. HIGHWAYS
7. GRAVEL PITS *X* 8. INDUSTRIES
9. FARMS 10. SHOPPING CENTER
11. OTHER *Rec. type camps border lakes*

J. POLLUTION SOURCES
1. INDIVIDUAL SEWAGE DISPOSAL *X*
2. LANDFILLS
3. NEARBY SALT WATER
4. INDUSTRIES
5. OTHER *Very little potential pollution sources observed in area.*

K. ADDITIONAL LOCAL INPUT *Many shallow dug wells observed, individual sewage, wells go into till.*

L. DESCRIPTION OF PHOTOS *#26 -sandy surface till at Wa-1;#27.-outwash deposits north of Wa-5;#28 -extensive sandy outwash deposits at Wa-1.*

M. ACCESSIBILITY *Generally poor, some areas completely inaccessible.*

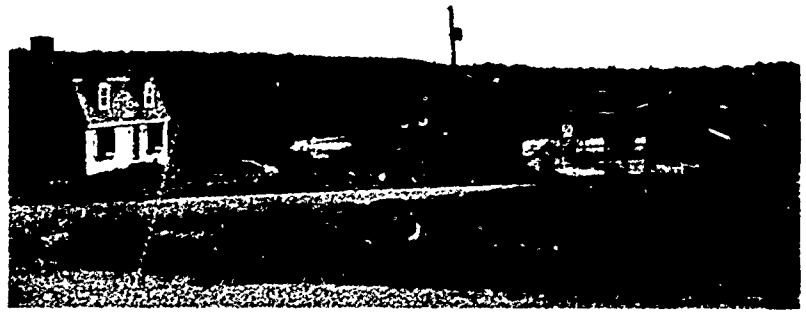
N. OTHER OBSERVATIONS & CONCLUSIONS *This area represents a sparse populated vacation area. Lakes appeared very clean and are probably natural reservoirs. Area appears to have excellent recharge potential from drainage of surrounding hills and adjacent rivers. Poor access limited field observations. What observed indicated soil overlaying bedrock to be free draining;flat kames seem to be extremely sandy and would make good well areas. Actual boundaries of aquifer are probably more like Weigle representation than Cottons. Drainage area of rivers and lakes probably more indicative of actual influence area. Area appears to have extremely high potential.*

O. CONTINUATIONS

* *Due to similar location, poor access and similar conditions, these areas were grouped together.*

** *is ice contact broken up into isolated kames. Pine River going northwestward is made up of Eskers and outwash. Eskers are narrow lands in Pine River Lake and irregular hummocks kames and located on its banks. Northern portion of Wa-4 and western portion of Wa-5 is till deposits.*



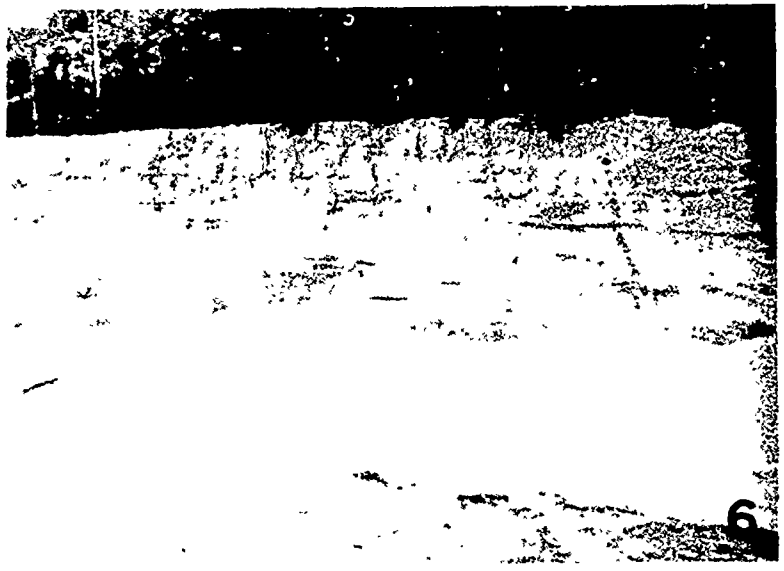












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8



11



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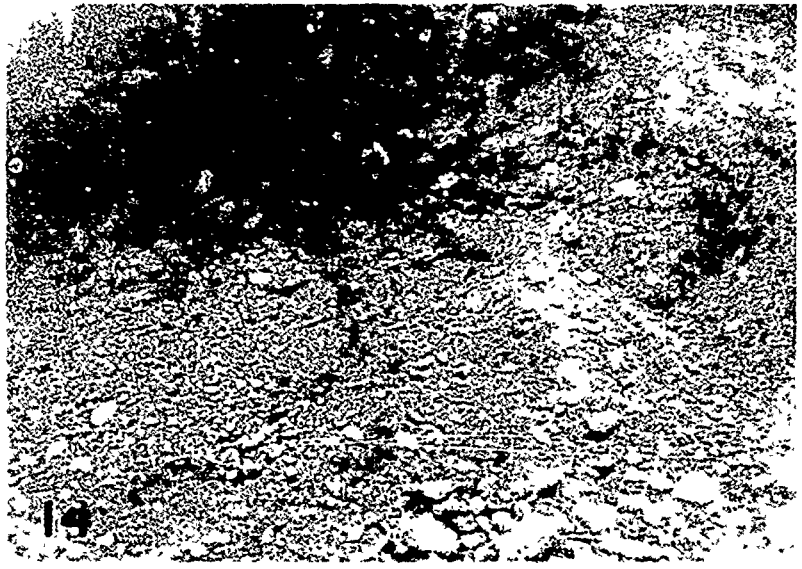
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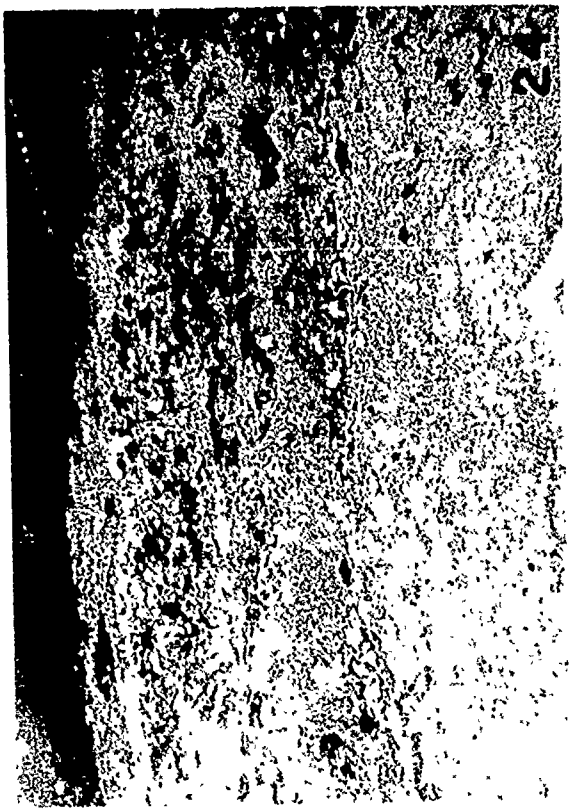
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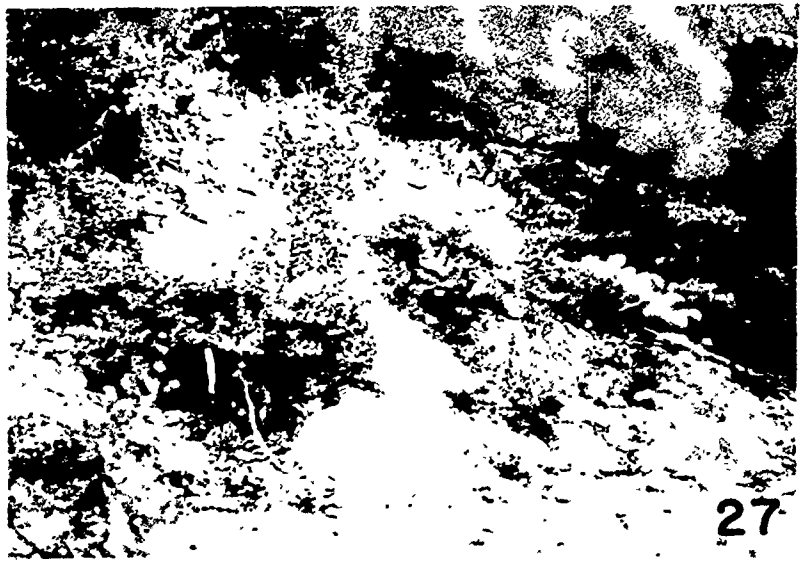




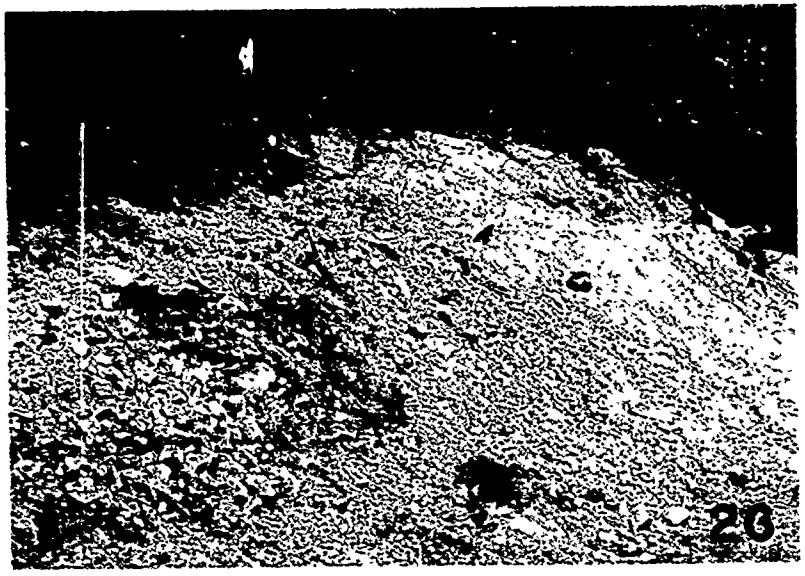




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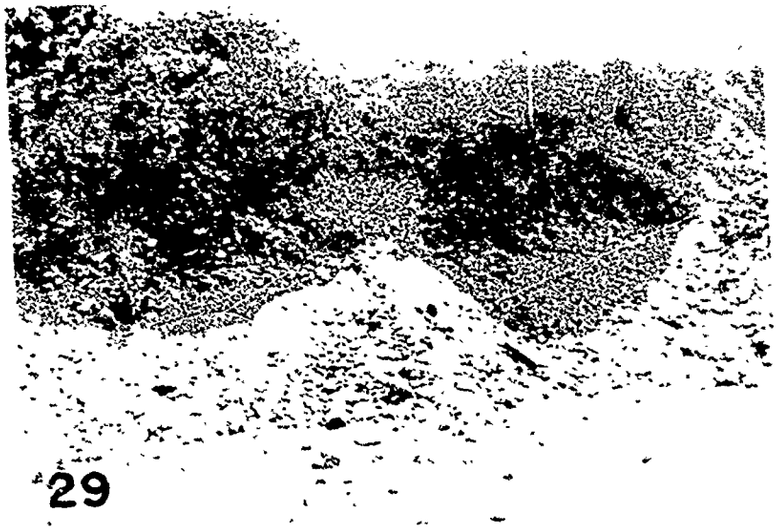


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26





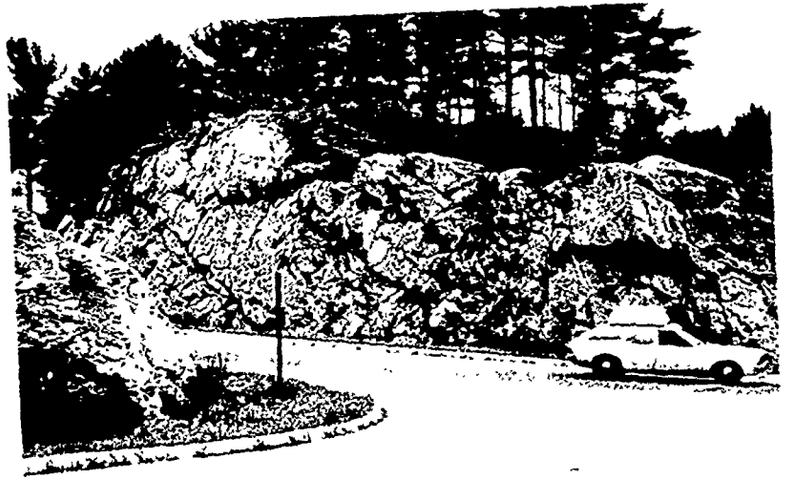
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APPENDIX B

PHASE I SITES ELIMINATED FROM FURTHER INVESTIGATION

Sites Eliminated From Further Investigation

BA-3 BA-4	Small areas ($< 1/4$ mi^2) composed of outwash. Areas appear to have very low potential.
CA-1	Numerous ledge outcrops observed. Surface soils composed of till material with a low permeability. No potential aquifer materials were found in the area.
DA-1 DA-2	Numerous ledge outcrops observed. No visible signs of ice contact or outwash deposits in the area. Groundwater potential is low.
DO-3	Area very hilly with many single family homes. Large part of area is imperious (paved). Soil is predominately surface till material.
DO-4	Pines along river indicate sandy material. Overall area appears to have low potential as useful aquifer.
DO-5	Existing literature rates this site with low potential. Access to site difficult, possible fair potential as there are some possible small outwash deposits.
EK-1	Deposits were surface till and outwash. Potential of this site is poor. Potential could be fair if deposits were found to be thick enough. This is doubtful.
EK-2	Site was difficult to access. Based on all existing information and a visual field check, site would appear to have low to fair potential.
EX-1	Surface material composed primarily of marine deposits with low permeability. Poor access to this site also.
FR-1 FR-2	Extremely difficult to field evaluate this site. Surficial geology maps indicate area is composed primarily of surface till and silt which would have low potential for development of an aquifer. Possible swamp deposits may also exist.
FR-4	Portions fairly hilly with numerous outcrops. Aquifer potential appears to be poor. Potential could be fair if outwash deposits are thick enough.

KI-4 Delineation of site modified to eliminate ledge outcrop were observed and to include area of gravel pit. Excavations 20 to 25 feet were observed. Aquifer would appear to have a poor potential based on field observations.

LE-1 Questionable area due to lack of cuts and excavations. Area composed primarily of till with some marine deposits scattered throughout. Potential poor.

LE-2 Questionable area due to lack of cuts. Access to site also poor. Area composed primarily of till throughout.

MA-2 Area could have a fair potential as a groundwater source due to its proximaty and possible connection with nearby aquifer which has good potential.

MI-2
MI-3 Overall potential for the two sites, which appear to be connected, seems to be low. Till is the predominate deposit in the area. Numerous ledge outcrops were also observed.

NF-2 Lack of access provided limited observations in this area. Pines and lack of surface drainage features would seem to indicate free draining material. Site would not seem to offer much potential.

NM-2 Overall area has questionable potential dependent upon thickness of sandy deposits. Existing literature rates this site with a low potential.

NO-1 No excavations greater than 1-2 feet deep were observed. Ice contact material appears to be prevalent in this area. Potential would depend upon extent and thickness of deposits. Aquifer could have fair to poor potential.

NO-2 Some ice contact deposits surrounded by till. Thickness of deposits are unknown and vary considerably. Could have good potential.

NO-3 No excavations greater than 2 to 3 feet, difficult to determine depth of deposits. Topography was hilly and covered with till deposits.

PL-1 Field observations at this site did not concur with existing data. Till and marine deposits were found throughout the area. Possible granite formations were also discovered (favorability range → 40 gpm).

PL-4 Large amount of till material and possible ledge outcrops observed throughout the area. Groundwater potential in this area would be very low.

SD-1 Area underlain by metamorphic rock. Depending upon thickness under morraine, aquifer could have poor to fair potential.

APPENDIX C

STATE OF NEW HAMPSHIRE WATER QUALITY DATA

PUBLIC WATER SUPPLIES



QUALITY
SUMMARY

1978

NEW HAMPSHIRE WATER SUPPLY

AND

POLLUTION CONTROL COMMISSION



The State of New Hampshire

COMMISSIONERS
ROBERT J. HILL, Chairman
HERBERT A. FINCHER, Vice Chairman
DONALD C. CALDERWOOD, P. E.
CHARLES E. BARRY
RICHARD M. FLYNN
ELMER L. JOHNSON
GEORGE M. McGEE, SR.
JAMES E MINNOCH
MAYNARD H. MIRES, M. D., M. P. H.
WAYNE L. PATENAUDE
ROBERT M. SNOW
JAMES VAROTSIS

Water Supply and Pollution Control Commission
Prescott Park
P.O. Box 95—105 Loudon Road
Concord 03301

STAFF
WILLIAM A. HEALY, P. E.
Executive Director
THOMAS A. LA CAVA, P. E
Deputy Executive Director
and Chief Engineer
LINDSAY M COLLINS, P. E.
Director of
Municipal Services

This publication provides information concerning the quality of water offered by large Public Water Systems in the State of New Hampshire. The Commission also published a pamphlet detailing the facilities of these large systems

This quality data is that from only a single sample. The sample is identified by the month in which the basic sample was taken. In certain cases, resamples or make-up samples were taken at later dates.

The data is organized into Primary (or health-related) standards including inorganic, organic, radionuclides, bacterial and turbidity; and Secondary (or aesthetically related) standards. Certain Secondary standards are currently not included in the State's Laboratory analysys program.

All samples were processed by the State Laboratory in Concord. Radiological quality was determined from a composite of four quarterly samples. Data for gross alpha includes uranium. The data for nitrate includes nitrite. An asterisk (*) indicates quality adjustment. All values in mg/l unless noted.

In addition to quality data, the safe yield of each source is listed. For wells, the yield is the safe yield determined by sustained pump test. For treatment facilities, the plant capacity is given.

The listed quality standards are generally those adopted by EPA relative to the National Safe Drinking Water Act (PL 93-523). The health effects of many of these quality standards can be referenced in the National Interim Primary Drinking Water Regulations, EPA-57019-76-003 at a price of $2.30 This document is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Information included in this pamphlet should be used for conceptual purposes only. All data should be considered as preliminary and draft. Where information is to be qouted, it should be confirmed with the particular water system.

"Live Free or Die"

TOWN / SYSTEM / SOURCE / SAFE YIELD (mgd)	MONTH/YEAR	INORGANIC CHEMICALS: Arsenic, As (.05)	Barium, Ba (1.0)	Cadmium, Cd (.01)	Chromium, Cr. (.05)	Lead, Pb (.05)	Mercury, Hg (.001)	Nitrate N (10.0) Nitrite N	Selenium, Se (.01)	Silver, Ag (.05)	Fluoride, F (2.4)	ORGANIC CHEMICALS: Endrin (.0002)	Lindane (.004)	Methoxychlor (.1)	Toxaphene (.005)	2,4-D (.1)	2,4,5-TP Silvex (.01)	Trihalomethane (.10)
1. ALLENSTOWN																		
2. Bear Brook Villa																		
3. No. 1 (Drw)	11/76	<.05	<1.0	<.01	<.05	<.05	<.001	.12	<.01	<.05	.16							
4.																		
5. No. 3 (Brw)	11/76	<.05	<1.0	<.01	<.05	<.05	<.001	.06	<.01	<.05	1.15							
6. Holiday Acres																		
7. No. 1 (Drw)																		
8. No. 2 (Drw)																		
9. ALTON																		
10. Alton Water Works																		
11. Levey Well (GPW) .54	5/77	<.05	<1.0	<.01	<.05	<.05	<.001	.89	<.01	<.05	.12							
12. Rt. 140 Well (GPW) .28	1/78	<.05	<1.0	<.01	<.05	<.05	<.002	3.90	<.01	<.05	<.10							
13 AMHERST																		
14. Amherst Village District																		
15. No. 1 (GPW) .29	4/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.27	<.01	<.05	.15							
16. ANDOVER																		
17. Andover Village District																		
18 Bradley Lake (surf)	1/78	<.05	<1.0	<.01	<.05	<.05	<.002	0.12	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
19. ANTRIM																		
20. Antrim Precinct																		
1. Campbell Pond	12/76	<.05	<1.0	<.01	<.05	<.05	<.001	.05	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
22. No. 1 (GPW)	12/77	<.05	<1.0	<.01	<.05	<.05	<.002	<.05	<.01	<.05	<.10							
23. ASHLAND																		
24. Ashland Water Works																		
25. Sky Pond (surf) Jackson Pond (surf)	12/76	.05	1.0	<.01	<.05	<.05	<.001	.07	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
26. ATKINSON																		
27. Walnut Ridge Water Co.																		
28. Walker Rd. No. 1 & 2 (Brw) .11	4/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.14							
29.																		
30. Providence Hill No. 1 (Brw) .11	4/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.15							
31. BARNSTEAD																		
32. Locke Lake Colony																		
33. No. 1 (Brw) near Rt. 28 .08	5/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.43							
34. No. 2 (Drw) Air strip .02	5/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.64							
35. No. 3 (Brw) Golf Course .18	5/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.92							
36. BARTLETT																		
37. Bartlett Village Fire Precinct																		
38. Albany River (surf)	10/76	<.05	<1.0	<.01	<.05	<.05	<.001	.21	<.01	<.05		<.0002	<.004	<.1	<.005	<.1	<.01	
39. Lower Bartlett Water Precinct																		
40. Intervale Lane (GPW) .50	8/77	<.05	<1.0	<.01	<.05	<.05	<.001	.74	<.01	<.05	38							
41. Linderhoff																		
42. Golf Course (2 GPW) .13	11/76	<.05	<1.0	<.01	<.05	<.05	<.001	.18	<.01	<.05	3.0							
43. Resort (Brw)	11/76	<.05	<1.0	<.01	<.05	<.05	<.001	.43	<.01	<.05	3.65							
44.																		
45. BELMONT																		
46. Belmont Water Works																		
47. No. 1 (GPW) (Aux.)																		
48. No. 2 (GPW)	11/77	<.05	<1.0	<.01	<.05	<.05	<.002	.21	<.01	<.05	<.10							
49. BENNINGTON																		
50. Bennington Water Dept.																		
51. Brook (surf)	12/76	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.10							
52. No. 1 (GPW)	11/77	<.05	<1.0	<.01	<.05	<.05	<.002	0.35	<.01	<.05	<.10							
53. BERLIN																		
54. Berlin Water Dept.																		
55. Ammonoosuc River (surf) 2.0	11/76	<.05	<1.0	<.01	<.05	<.05	<.001	.27	<.01	<.05	.78*	<.0002	<.004	<.1	<.005	<.1	<.01	
56. Androscoggin River (surf) 2.0	4/77	<.05	<1.0	<.01	<.05	<.05	<.001	.25	<.01	<.05	1.65*	<.0002	<.004	<.1	<.005	<.1	<.01	
57. No. 1 (GPW) (Emergency) .64																		
58. Anderson (surf) (Emergency)																		
59. BETHLEHEM																		
60. Bethlehem Village District																		
61. Gale River (surf)	1/78	<.05	<1.0	<.01	<.05	<.05	<.002	.20	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
62. Zealand River (surf)	1/78	<.05	<1.0	<.01	<.05	<.05	<.002	.13	<.01	<.05	.42	<.0002	<.004	<.1	<.005	<.1	<.01	
63. BOSCAWEN																		
64. Boscawen Water Precinct																		
65. Walker Pond (surf)	10/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
66. BRENTWOOD																		
67. Rockingham County Home																		
68. No. 1 (GPW)	8/77	<.05	<1.0	<.01	<.05	<.05	<.001	3.1	<.01	<.05	.19							
69. No. 2 (GPW)	1/77	<.05	<1.0	<.01	<.05	<.05	<.001	4.44	<.01	<.05	<.1							
70. BRISTOL																		
71. Bristol Water Works																		
72. No. 1 (GPW)	3/77					.05												
73. CAMPTON																		
74. Campton Village Precinct																		
75. Spring & Reservoir (Surf)	12/76	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.1	<.0002	<.004	<.1	<.005	<.1	<.01	
76. Waterville Estates																		
77. Infiltration well																		
78.																		
79.																		
80.																		
81. CANAAN																		
82. Crystal Lake Water Co.																		
83. Canaan Street Lake 1.0	1/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<1	<.0002	<.004	<.1	<.005	<.1	<.01	
84. CARROLL																		
85. Carroll Water Works																		
86 Little River (surf)	1/78	<.05	<1.0	<.01	<.05	<.05	<.002	22	<.01	<.05	.25	<.0002	<.004	<.1	<.005	<.1	<.01	
87. Cherry Mtn. (surf)	1/78	<.05	<1.0	<.01	<.05	<.05	<.002	.50	<.01	<.05	.10	<.0002	<.004	<.1	<.005	<.1	<.01	

RADIONUCLIDES					SECONDARY STANDARDS														OTHERS			
Gross Alpha *	Radium 226	Radium 228	Uranium		Turbidity	Chloride (250)	Color (15 units)	Copper Cu (1.0)	Corrosivity	Foaming Agents (0.5)	Hydrogen Sulfide (.05)	Iron (.30)	Manganese (.05)	Odor (3 TON)	Ph (6.5-8.5)	Sulfate (250)	TDS (500)	Zinc (5)		Sodium	Hardness	Total Alkalinity
					.17	10	5	<.1				<.1	<.05		6.7						20	17
18.0±3.0					.32	14	5	<.1				<.1	<.05		6.8						38	46
					.16	23	0	<.1				<.1	<.05		6.6					9.71	50	22
					.1	83	5	<.02				.13	.04		6.7					48	68	25
					.1	40	15	<.1				<.1	<.05		6.4					13.3	60	22
1.4±1.0					.57	<10	20	<.1				.39	<.05		6.8					2.5	12	7
					2.0	<10	1/	<.1				<.1	<.05		6.8					2.5	22	7.4
<1.0					.81	<10	35	<.05				.40	<.05		6.4						32	18
												.11	<.05		6.9						20	11.7
<1.0					0.6	<10	15	<.1												12.9	58	88
						25	40	<.1				90	0.06		7.7					13.4	34	54
4.9±1.7																						
29.7±4.9						70	10	<.1				.48	<.05		7.7							
					.28	12	0	.10				<.1	<.05		8.0					9.1	92	80
3.6±1.4					.30	<10	0	<.1				<.1	<.05		8.2					13.3	64	92
					.26	<10	15	<.1				<.1	<.05		8.2					13.2	82	100
					.30	<10	15	<.1				<.1	<.05		6.3						10	
					.16	14	5	.26				<.1	<.05		6.4					10 4	32	10
					1.2	29	5	<.1				.20	1 43		6.9					8	66.4	
42.6±5.4					.02	<10	5	.10				<.1	<.05		7.2						54	18.6
7.1±1.9																						
					.97	60	20	<.1				.99	0.15		6.0					14	64	16
					.24	<10	10	<.1				<.1	<.05		6.7						30	15.9
					.27	<10	10	<.1				<.1	<.05		6.9					3.2	24	14
					.38	<10	25	.1				.14	<.05		6.3						28	8.5
					.92	<10	10	.12				<.1	<.05		7.0					9.4	18	9.0
					.32	<10	5	<.1				<.1	0.09		6.8					1.4	18	8
					.33	<10	5	<.1				<.1	.09		6.6					1.4	16	9
					1.50	15	40	<.1				.30	<.05		6.8					5.7	24	15
					1	170	10	<.10				.35	<.05		6.7					97	124	58
					4.6	34	15	<.10				.23	.11		7.0						174	
						<10		<.1				< 1	.05		6.4					48.8	22	7.0
					.16	<10	5	<.1				<.1	.05		6.9						16	15.9
	<1.0																					
					.44	<10	15	<.1				<.1	<.05		8.0						30	14.8
					.33	<10	0	<.1				<.1	0 08		6.7					1.3	22	7
					.32	<10	0	<.1				<.1	.10		7.1					8.3	24	18

	TOWN / SYSTEM / SOURCE / YIELD (mgd)	SAFE	MONTH/YEAR	INORGANIC CHEMICALS												ORGANIC CHEMICALS						
				Arsenic, As (.05)	Barium, Ba (1.0)	Cadmium, Cd (.01)	Chromium, Cr (.05)	Lead, Pb (.05)	Mercury, Hg (.001)	Nitrate N (10.0) Nitrite N	Selenium, Se (.01)	Silver, Ag (.05)	Fluoride, F (2.4)		Endrin (.0002	Lindane (.004)	Methoxychlor (.1)	Toxaphene (.005)	2,4-D (.1)	2,4,5-TP Silvex (.01)	Trihalomethane (.10)
84.	CHARLESTOWN																					
85.	Charlestown Water Works																					
90.	Beaver Brook (surf)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.08	<.01	<.05	.11		<.0002	<.004	<.1	<.005	<.1	<.01	
91.	No. 1 (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.19	<.01	<.05	.10								
92.	No. Charlestown Water Works																					
93.	No. 1 (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.12								
94.	CLAREMONT																					
95.	Claremont Water & Sewer Dept																					
96.	Hurricane Br		4/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.10		<.0002	<.004	<.1	<.005	<.1	<.01	
97.	White Water & Granby Br. (surf)		4/77	<.05	<1.0	<.01	<.05	<.05	<.001	.13	<.01	<.05	.10		<.0002	<.004	<.1	<.005	<.1	<.01	
98.	No. 1 GPW) 1.1																					
99.	COLEBROOK																					
100.	Colebrook Water Works																					
101.	Point Wells (TD)		5/77	<.05	<1.0	<.010	<.05	<.05	<.001	1.37	<.01	<.05	<.12								
102.	CONCORD																					
103.	Concord Water Works																					
104.	Penacook Lake (surf)	3.0	10/77	<.05	<1.0	<.01	<.05	<.05	.002	<.05	<.01	<.05	<.10		<.0002	<.004	<.1	<.005	<.1	<.01	
105.	Rte 106 Wells No 1 (GPW)	.25	10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.11	<.01	<.05	<.10								
106.	No 4 (GPW)	.25	10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.14	<.01	<.05	<.10								
107.	No 5 (GPW)	.25	10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.14	<.01	<.05	<.10								
108.	No. 7 (GPW)	.25	10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.22	<.01	<.05	<.10								
109.	CONWAY																					
110.	Conway Village Fire Precinct																					
111.	No. 1 (GPW) 1.0+		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	.50	<.01	<.05	.23								
112.	No. 2 (GPW) .70+		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	2.16	<.01	<.05	.20								
113.	No Conway Fire District																					
114.	No. 1 (GPW) .64		4/77	<.05	<1.0	<.01	<.05	<.05	<.001	.62	<.01	<.05	.85								
115.	No. 2 (GPW) 1.03		4/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.38	<.01	<.05	.72								
116.	No 3 (GPW) 2.0		7/77	<.05	<1.0	<.01	<.05	<.05	<.001	.25	<.01	<.05	1.50								
117.	Kearsarge Res. (surf)		8/77	<.05	<1.0	<.01	<.05	<.05	<.001	.07	<.01	<.05	.17		<.0002	<.004	<.1	<.005	<.1	<.01	
118.	Artist Res. (surf)		7/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.64		<.0002	<.004	<.1	<.005	<.1	<.01	
119.	DERRY																					
120.	Derry Water Works																					
121.	Foreway Wells (DuW)		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.97	<.01	<.05	<.1								
122.	No. 1 (GPW) .45		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	1.07	<.01	<.05	.13								
123.	No. 2 (GPW)		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.31	<.01	<.05	<.1								
124.	Maple Hill Acres																					
125.	Drilled Wells (4 BrW)		12/76	<.05	<1.0	<.01	<.05	<.05	<.001	0.28	<.01	<.05	.28								
126.	DOVER																					
127.	Dover Water Dept.																					
128.	Cummings (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.22	<.01	<.05	<.10								
129.	Calderwood (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.08	<.01	<.05	.11								
130.	Hughes (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.38	<.01	<.05	.10								
131.	Griffin (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.33	<.01	<.05	<.10								
132.	Ireland (GPW)	1.0	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.34	<.01	<.05	.13								
133.	Barbados (GPW) (aux.)	1.0																				
134.	Willard (GPW) (aux.)	.50																				
135.	DURHAM																					
136.	Durham Water Dept.																					
137.	Oyster River (surf)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.20	<.01	<.05	1.20		<.0002	<.004	<.1	<.005	<.1	<.01	
138.	Lamprey River (surf) (Aux.)																					
139.	ENFIELD																					
140.	Enfield Village Fire Dist.																					
141.																						
142.	Harris Br. (surf)		1/77	<.05	<1.0	<.01	<.05	<.05	<.001	.06	<.01	<.05	<0.1		<.0002	<.004	<.1	<.005	<.1	<.01	
143.	EPPING																					
144.	Epping Water Dept.																					
145.	No 1 (GPW) .14		4/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.29	<.01	<.05	0.20								
146.	No. 2 (GPW) .17																					
147.	EPSOM																					
148.	Epsom Village Dist.																					
149.	No. 1 (GPW)		9/77	<.05	<1.0	<.01	<.05	<.05	<.002	.19	<.01	<.05	.19								
150.	No. 2 (GPW)		9/77	<.05	<1.0	<.01	<.05	.07	<.002	1.09	<.01	<.05	.19								
151.	EXETER																					
152.	Exeter Water Dept.																					
153.	Lary Lane (GPW) .64		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	0.29								
154.	No. 2 (GPW)																					
155.	Dearborn Br. (surf)		10/76	<.05	<1.0	<.01	<.05	<.05	<.001	0.02	<.01	<.05			<.0002	<.004	<.1	<.005	<.1	<.01	
156.	FARMINGTON																					
157.	Farmington Village Dist.																					
158.	No. 1 (Gun) (Aux.)																					
159.	No 2 (GPW)		9/77	<.05	<1.0	<.01	<.05	<.05	<.001	.20	<.01	<.05	.19								
160.	No 3 (GPW)		9/77	<.05	<1.0	<.01	<.05	<.05	<.001	.86	<.01	<.05	.50								
161.	FRANCONIA																					
162.	Franconia Water Dept																					
163.	Gale Res		5/78	<.05	<1.0	<.01	<.05	<.05	<.001	.52	<.01	<.05	.17								
164.	House Spring		5/78	<.05	<1.0	<.01	<.05	<.05	<.001	1.65	<.01	<.05	<.10								
165.	Mittersill Resort																					
166.	No 1 (BrW)		5/78																			
167.	FRANKLIN																					
168.	Franklin Water Dept																					
169.	Point Wells (Sanborntom)	.70	11/77	<.05	<1.0	<.01	<.05	<.05	<.002	.20	<.01	<.05	<.1								
170.	No 1 (GPW)	.95	11/77	<.05	<1.0	<.01	<.05	<.05	<.002	.30	<.01	<.05	<.1								
171.	No 2 (GPW)	.95																				

RADIONUCLIDES					SECONDARY STANDARDS											OTHERS			
Gross Alpha *	Radium 226	Radium 228	Uranium		Turbidity	Chloride (250)	Color (15 units)	Copper Cu (1 0)	Corrosivity	Foaming Agents (0 5)	Hydrogen Sulfide (05)	Iron (30)	Manganese (05)	Odor (3 TON)	Ph (6 5-8 5)	Sulfate (250)	TDS (500)	Zinc (5)	Sodium (20 250)	Hardness	Total Alkalinity
<1.0					6.0	<10	30	.68				1.41	.06		6.8				4.4	18	8.0
<1.0					.28	<10	5	<.1				<.1	<.05		6.6				2.8	26	11.0
					.54	<10	0	<.1				<.1	.08		8.4				6 4	102	101
					.58	<10	10	<.1				<.1	.06		7.0				2.1	26	9.0
					.48	<10	10	<.1				<.1	<.05		7.2				2.1	26	11.0
					.38	24	0	<.1				.15	<.05		7.7				12.7	90	82
					35	15	0	<.1				<.10	<.05		6.9				10	24	14
					.18	11	0	<.1				<.1	< 05		6.5				5.8	26	7.5
					.32	13	5	<.1				<.1	<.05		6.5				5.7	24	8.0
					.32	16	0	<.1				<.1	<.05		6.5				10.2	26	11.0
					.78	<10	5	<.1				<.1	0.13		6.0				7.0	22	16.0
					.16	21	0	<.1				<.1	<.05		6.1				7.6	32	11
					.21	24	5	<.1				<.1	<.05		5.8				9.9	28	10
					<.1	11	0	<.1				<.1	<.05		6.5				5.1	24	8.0
					.14	15	10	<.1				<.1	<.05		6.4				4.8	20	10.0
					<.01	<10	35	<.1				<.1	<.05		6.7				3.2	20	17.0
					.08	<10	20	<.1				<.1	<.05		7.5				2.7	26	9.0
					<.01	<10	15	<.1				<.1	<.05		7.1				1.6	10	11.0
					1.20	65	25	.53				.86	.33		6.3				32	64	28
					.52	66	15	.16				.18	.37		6.2				37	62	35
					.39	63	0	.13				<.1	<.05		6.3				29	62	23
					.26	<10	15	<.1				<.1	< 05		7.7					96	73
1.0±0.9					.10	120	0	<.1				<.1	.53		6.7					100	3.5
					.14	22	0	<.1				<.1	<.05		7.1					50	2.9
1.6±0.8					.12	19	0	<.1				<.1	.16		6.1					48	9.0
					1.0	<10	0	<.1				.11	<.05		6.9					50	19
<1.0					0.12	15	5	<.1				<.01	<.05		8.1					52	45
					0.60	26	20	<.1				0.10	0.20		7.8					42	
0.7±0 5					.28	.10	20	.12				<.1	.05		6.9					24	11.7
					.44	.15	5	<.1				<.1	.09		7.9				9.6	24	11.2
						42	25	.10							6.6				22	28	9.0
					.01	11	10	<.1				<.1	.05		5.5				12	28	16
					.22	23	5	<.1				<.1	.14		d.1				14.1	124	119
					.23	33	0	<1				<.1	<.05		6.9					60	
					<.01	18	10	<.1				<.1	<.05		6.4				9 9	34	15
					<.01	58	5	<.1				<.1	.06		6.1				3.7	42	14
					.52	16	0	<.1				<.1	<.05		5.9				7.1	32	20
					.57	<10	0	<.1				<.1	<.05		6.7				3.1	34	20
					<.1	<18	10	<.1				<.1	<.05		7.0				10.2	24	18
					<.1	<10	5	<.1				.14	.30		6.8				4.9	26	12

TOWN / SYSTEM / SOURCE / SAFE YIELD (mgd)	MONTH/YEAR	INORGANIC CHEMICALS: Arsenic, As (.05)	Barium, Ba (1.0)	Cadmium, Cd (.01)	Chromium, Cr (.05)	Lead, Pb (.05)	Mercury, Hg (.001)	Nitrate N (10.0) Nitrite	Selenium, Se (.01)	Silver, Ag (.05)	Fluoride, F (2.4)	ORGANIC CHEMICALS: Endrin (.0002)	Lindane (.004)	Methoxychlor (.1)	Toxaphene (.005)	2,4-D (.1)	2,4,5-TP Silvex (.01)	Trihalomethane (.10)
GILFORD																		
Gunstock Water Com.																		
Well No 1 (Brw) .16	10/77	<.05	<1.0	<.01	<.05	<.05	<.002	0.37	<.01	<.05	.24							
Well No 2 12' Dug	10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.57	<.01	<.05	.14							
GOFFSTOWN																		
Goffstown Village Water Prec.																		
Brook	1/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
No. 1 (GPW)	10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.15	<.01	<.05	.12							
No. 2 (GPW)	1/77	<.05	<1.0	<.01	<.05	<.05	<.001	.70	<.01	<.05	<.10							
GORHAM																		
Gorham Water & Sewer Dept.																		
Icy Gulch	11/76											<.0002	<.004	<.1	<.005	<.1	<.01	
No. 1 (GPW)																		
No. 2 (GPW)																		
Alpine Res. (surf)	12/76	<.05	<1.0	<.01	<.05	<.05	<.001	0.05	<.01	<.05	.41							
GRANTHAM																		
Eastman Water Co.																		
19 Dug Wells .35	4/78	<.05	<1.0	<.01	<.05	<.05	<.001	.20	<.01	<.05	<.10							
GREENVILLE																		
Greenville Water Works																		
Miller & Gamble Br. (surf)	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.17	<.01	<.05	<0.10	<.0002	<.004	<.1	<.005	<.1	<.01	
HAMPTON																		
Hampton Water Works																		
Grensnaw (GPW) .70	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.17	<.01	<.05	<.10							
Scammon (GPW) .70	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.78	<.01	<.05	<.10							
White Fields (GPW) .49	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.78	<.01	<.05	<.10							
Sicard St. (GPW) .70	8/77	<.05	<1.0	<.01	<.05	<.05	<.001	.79	<.01	<.05	.19							
Jenness Beach (GPW) .10	8/77	<.05	<1.0	<.01	<.05	<.05	<.001	4.9	<.01	<.05	.20							
Ryder (GPW) .75	8/77	<.05	<1.0	<.01	<.05	<.05	<.001	3.3	<.01	<.05	.17							
Coakley (GPW) .30	9/77	<.05	<1.0	<.01	<.05	<.05	<.001	2.24	<.01	<.05	<.10							
HANCOCK																		
Hancock Water Works																		
Juggernaut Pond (surf)	12/76	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
HANOVER																		
Hanover Water Co.																		
Reservoir (surf) 2.64	1/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05		<.05	1.15*	<.0002	<.004	<.1	<.005	<.1	<.01	
No. 1 (GPW) Auv .72	5/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.16	<.01	<.05	.30							
HAVERHILL																		
Woodsville Water & Light Co																		
Wild Ammonoosuc River (surf)	2/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.33		<.05	0.10	<.0002	<.004	<.1	<.005	<.1	<.01	
Mountain Springs Water Co.																		
Infiltration Well	1/78	<.05	<1.0	<.01	<.05	<.05	<.002	0.24	<.01	<.05	<.10							
HENNIKER																		
Cogswell Spring Water Co.																		
No. 1 (GPW)	11/77	<.05	<1.0	<.01	<.05	<.05	<.002	.30	<.01	<.05	<.1							
No. 2 (GPW)	11/77	<.05	<1.0	<.01	<.05	<.05	<.002	.26	<.01	<.05	<.1							
HILL																		
Hill Water Works																		
No 1 (GPW)	2/78	<.05	<1.0	<.01	<.05	<.05	<.002	.17	<.01	<.05	<.1							
HILLSBORO																		
Hillsboro Water Works																		
Loon Pond (surf)	12/76	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
Emerald Lake Shores																		
No. 1 (BrW) .03	6/77	<.05	<1.0	<.01	<.05	<.05	<.001	.13	<.01	<.05	1.81							
No. 4 (BrW) .07	6/77	<.05	<1.0	<.01	<.05	<.05	<.001	.07	<.01	<.05	1.45							
No. 5 (BrW) .04	6/77	<.05	<1.0	<.01	<.05	<.05	<.001	.13	<.01	<.05	1.80							
No. 6 (BrW) .02	6/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.82							
HINSDALE																		
Hinsdale Water & Sewer Works																		
No. 1 & 2 (GPW)	2/77	<.05	<1.0	<.01	<.05	<.05	<.001	.31	<.01	<.05	.12							
HOOKSETT																		
Hooksett Village Water Precinct																		
Pinnacle Pond (surf)	9/77	<.05	<1.0	<.01	<.05	<.05	<.002	<.05	<.01	<.05	.19	<.0002	<.004	<.1	<.005	<.1	<.01	
Central Hooksett Precinct																		
No. 1 (GPW) on Rte. 28	9/77	<.05	<1.0	<.01	<.05	<.05	<.002	1.56	<.01	<.05	.36							
No. 2 (GPW) Man. Sand	9/77	<.05	<1.0	<.01	<.05	<.05	<.002	1.10	<.01	<.05	.12							
No. 3 (GPW) (Aux.)																		
HOPKINTON																		
Contoocook Fire District																		
Bear Pond (surf)	1/78	<.05	<1.0	<.01	<.05	<.05	<.002	<.05	<.01	<.05	<.10	<.0002	.004	<.1	<.005	<.1	<.01	
HUDSON																		
Hudson Water Company																		
Glover (GPW) .58	12/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.74	<.01	<.05	<.10							
Greeley (GPW) .50	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.94	<.01	<.05	<.10							
Highland (GPW) .35	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.95	<.01	<.05	<.10							
Tarnic (GPW) .30	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.62	<.01	<.05	<.10							
JAFFREY																		
Jaffrey Water Works																		

RADIONUCLIDES				SECONDARY STANDARDS																		
Gross Alpha *	Radium 226	Radium 228	Uranium		Turbidity	Chloride (250)	Color (15 units)	Copper Cu (1.0)	Corrosivity	Foaming Agents (0.5)	Hydrogen Sulfide (.05)	Iron (.30)	Manganese (.05)	Odor (3 TON)	Ph (6.5-8.5)	Sulfate (250)	TDS (500)	Zinc (5)		Sodium (20 250)	Hardness	Total Alkalinity	
					.4	<10	20	<.1				<.1	<.05		7.1					5.0	36	21	
					<.1	<10	0	<.1				<.1	<.05		6.5					3.9	28	24	
<1.0					.56	<10	15	<.1				.15	<.05		6.7						20	10.6	
					.3	16	20	<.1				<.1	<.05		6.3					9.7	20	11	
<1.0					.11	11	10	<.1				<.1	<.05		6.2						22	18	
					.02	<10	10	<.1				<.1	<.05		6.6						14	9.5	
					.16	<10	0	.21				<.1	<.05		6.7						42	20.1	
					.72	<10	5	<0.1				<.1	<.05		6.4					2.3	30	30	
					.50	11	15	<.1				<.1	<.05		7.4						46	23	
1.3±1.0					.60	36	0	<.10				.20	.10		7.9					12.1	174	138	
?1.0					.30	39	0	<.10				<.1	<.05		7.2						98	57	
					.18	40	0	<.10				<.1	<.05		6.9					11.8	68	32	
					.11	25	10	<.10				<.1	<.05		7.2					11.0	148	72	
					.18	90	0	<.10				<.1	<.05		6 6					34.5	104	39	
					.16	48	5	<.10				.21	<.05		6.7					28.8	68	17	
					<.01	53	0	<.10				<.1	<.05		8.4					15.	148	87	
<1.0					0.8	<10	15	<.1				<.1	<.05		6.2						12	6.4	
<1.0					.44	<10	10	<.1				.11	<.05		6 7						36	21.2	
					.54	<10	C	<.1				.10	<.05		8.1						128		
					.26	<10	0	.19				<.1	4.05		6.0						16	6.4	
					3.6	14	45	<.1				.81	<.05		10.1					5.1	46	43	
					<.1	<10	0	<.1				<.1	<.05		6.7					4.2	16	16	
					<.1	<10	15	<.1				<.1	<.05		6.8					3 4	18	14	
					0.6	<10	0	<.1				<.1	0.09		6.9					2.3	24	15	
<1.0					.36	<10	15	<.1				<.1	<.05		6.8						18	6.3	
						<10	10	<.1				<.1	<.05		7 9					9.4	26	38	
						<10	0	<.1				<.1	<.05		8.1					9.7	30	46	
						<10	10	<.1				<.1	<.05		7.9					9.6	24	41	
						<10	0	<.1				<.1	<.05		8.1					7.2	60	59	
<1.0					.24	<10	5	<.1				<.1	<.05		6.6						40	35	
					.63	11	10	<.1				.3	<.05		6.5					6.8	28	60	
					<.01	21	10	<.1				<.1	.27		6.2					15	48	13	
					<.01	<10	0	<.1				.1	.05		7.6					33	38	65	
					.51	<10	10	.1				.13	<.05		7.5					3.3	20	10	
					.39	59	30	.01				.32	.11		7.0					17.5	70	33	
2.1±1.4					.88	46	25	<.1				1.18	.61		6.4					12.1	70	44	
<1.0					.28	71	5	<.1				<.1	.46		6.2					13.3	90	19	
1.2±0 8					0.48	23	20	<.1				.69	.06		6.5					9.2	46	24	

	TOWN / SYSTEM / SOURCE /	SAFE YIELD (mgd)	MONTH/YEAR	Arsenic, As (.05)	Barium, Ba (1.0)	Cadmium, Cd (.01)	Chromium, Cr (.05)	Lead, Pb (.05)	Mercury, Hg (.001)	Nitrate N (10.0) Nitrite	Selenium, Se (.01)	Silver, Ag (.05)	Fluoride, F (2.4)	Endrin (.0002)	Lindane (.004)	Methoxychlor (.1)	Toxaphene (.005)	2,4-D (.1)	2,4,5-TP Silvex (.01)	Trihalomethane (.10)
257.	Bullet Pond (surf)		11/76	<.05	<1.0	<.01	<.05	<.05	<.001	.02	<.01	<.05	<.10							
258.	Poole Res (surf)		11/76	<.05	<1.0	<.01	<.05	<.05	<.001	.05	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
259.	No. 1 (GPW)		12/76	<.05	<1.0	<.01	<.05	<.05	<.001	.69	<.01	<.05	<.10							
260.																				
261.	KEENE																			
262.	Keene Water Works																			
263.	Babbidge Res. (surf)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	.13	<.01	<.05	0.17	<.0002	<.004	<.1	<.005	<.1	<.01	
264.	No. 1 (GPW)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.67	<.01	<.05	0.18							
265.	No 2 (GPW)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	.02	<.01	<.05	0.15							
266.	West St (GPW)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.12	<.01	<.05	0.13							
267.	No. 4 (GPW)		2/70	<.05	<1.0	<.01	<.05	<.05	<.002	.09	<.01	<.05	0.11							
268.																				
269.	LACONIA																			
270.	Laconia Water Dept.																			
271.	Paugus Bay (surf)		12/76	<.05	<1.0	<.01	<.05	<.05	<.001	.11	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
272.	L Winnipesaukee(surf)		6/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
273.	LANCASTER																			
274.	Lancaster Water Works																			
275.	Garland Brook (surf)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	.21	<.01	<.05	1.30*	<.0002	<.004	<.1	<.005	<.1	<.01	
276.	LEBANON																			
277.	Lebanon Water Works																			
278.	Mascoma River (surf)		1/77	<.05	<1.0	<.01	<.05	<.05	<.001	.12	<.01	<.05	1.25*	<.0002	<.004	<.1	<.005	<.1	<.01	
279.	LINCOLN																			
280.	Lincoln Water Works																			
281.	Boyce Br. (surf)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	.49	<.01	<.05	.46	<.0002	<.004	<.1	<.005	<.1	<.01	
282.	Loon Pond (surf)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	.20	<.01	<.05	.32	<.0002	<.004	<.1	<.005	<.1	<.01	
283.	LISBON																			
284.	Lisbon Water Dept.																			
285.	Pearl Lake (surf)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	.12	<.01	<.05	<.1	<.0002	<.004	<.1	<.005	<.1	<.01	
286.																				
287.	LITCHFIELD																			
288.	High Plain - Darrah Pond																			
289.	High Plains (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.11							
290.	Darrah Pond (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.10							
291.																				
292.	LITTLETON																			
293.	Littleton Water & Light Co.																			
294.	Gale River (surf)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	.44	<.01	<.05	.14	<.0002	<.004	<.1	<.005	<.1	<.01	
295.	Well No. 1 (GPW)		6/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.27	<.01	<.05	<.10							
296.	LONDONDERRY																			
297.	Whispering Pine MHP																			
298.	Dug Well (4 DuW)		1/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.39	<.01	<.05	<.10							
299.																				
300.	MADISON																			
301.	Edelweiss Dev.																			
302.	Gravel Pack Well (2 GPW)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.17	<.01	<.05	0.50							
303.	MANCHESTER																			
304.	Manchester Water Dept.																			
305.	Lake Massabesic (surf)		9/77	<.05	<1.0	<.01	<.05	<.05	<.002	<.05	<.01	<.05		<.0002	<.004	<.1	<.005	<.1	<.01	
306.																				
307.	MARLBORO																			
308.	Marlboro Water Works																			
309.	No. 1 (GPW)		2/78	<.05	<1.0	<.01	<.05	<.05	<.002	1.83	<.01	<.05	<.1							
310.																				
311.	MEREDITH																			
312.	Meredith Water Dept.																			
313.	Lake Waukewan (surf)		6/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.01	<.0002	<.004	<.1	<.005	<.1	<.01	
314.	Meredith Res. (surf)		12/76	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	<.01							
315.	MERRIMACK																			
316.	Merrimack Village District																			
317.	No. 1 (GPW) .32		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.54	<.01	<.05	<.1							
318.	No. 2 (GPW) 2.10		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.34	<.01	<.05	<.1							
319.	No. 3 (GPW) 2.1		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.07	<.01	<.05	<.1							
320.	No. 4 (GPW) .60		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	2.08	<.01	<.05	<.1							
321.	No. 5 (GPW) 1.8		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	1.90	<.01	<.05	<.1							
322.	MILFORD																			
323.	Milford Water Dept.																			
324.	Keyes (GPW) .71		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	1.17	<.01	<.05	<.10							
325.	Savage (GPW) .71		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	1.87	<.01	<.05	<.1							
326.	Kokko (GPW) .35		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.81	<.01	<.05	<.1							
327.	MILTON																			
328	Milton Water Dept.																			
329.	No. 1 (GPW)		7/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.79	<.01	<.05	.1							
330.	MOULTONBORO																			
331.	Paradise Shores																			
332.	Dug Well (DuW)		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.39	<.01	<.05	.18							
333.	Infiltration Well																			
334.	400' well (BrW)		1/77	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	4.1							
335.	NASHUA																			
336.	Pennichuck Water Company																			
337.	Pennichuck Br. (surf)		1/77	<.05	<1.0	<.01	<.05	<.05	<.001	.12	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
338.	No. 1 (GPW)																			
339.	No. 2 (GPW)																			
340.	No. 3 (GPW)																			

INORGANIC CHEMICALS

ORGANIC CHEMICALS

RADIONUCLIDES				SECONDARY STANDARDS													OTHERS			
Gross Alpha *	Radium 226	Radium 228	Uranium	Turbidity	Chloride (250)	Color (15 units)	Copper Cu (1.0)	Corrosivity	Foaming Agents (0.5)	Hydrogen Sulfide (.05)	Iron (.30)	Manganese (.05)	Odor (3 TON)	Ph (6.5-8.5)	Sulfate (250)	TDS (500)	Zinc (5)	Sodium (20 250)	Hardness	Total Alkalinity	
<1.0				0.30	<10	5	<.1				<.1	<.05		6.9					16	3.7	257.
<1.0				0.37	<10	5	.18				<.1	.07		5.1					14	2.8	258.
				0.30	12	10	<.1				<.1	<.05		6.0					30	1.7	255
																					260.
																					261.
																					262.
<1.0				0.8	11	25	.23				.78	.10		5.4					20	3 0	263.
				<0.1	17	0	<.1				<.1	.05		6.3					50	21	264.
<1.0				<0.1	24	5	<.1				.12	.05		6.4					58	14	255.
<1.0				<0.1	36	0	<.1				<.1	.05		6.5					52	24	266.
				0.83	<10	5	<.1				0.1	.16		7.2				4.6	32	20	267.
																					268.
																					269.
																					270.
<1.0				0.46	<10	5	<.1				.17	<.05		7.3					26	17	271.
				0.48	16.	10	<.1				<.1	<.05		8.1				9.7	20	10	272.
																					273.
																					274.
<1.0				0.54	<10	10	<.1				.11	<.05		7.2				2.8	22	10	275.
																					276.
<1.0																					277.
				.16	<10	20	<.1				<.1	<.05		6.4					30	24.4	278.
																					279.
																					280.
1.1±0.7				.22	<10	15	<.1				<.1	<.05		6.1				1.1	20	6.0	281.
<1.0				.28	<10	10	<.1				<.1	<.05		5.4				1.5	22	15.0	282.
																					283.
																					284.
				.46	<10	15	<.1				.10	<.05		6.8					28	21.2	285.
																					286.
																					287.
																					288.
<1.0				.34	<10	0	<.1				<.1	<.05		6.5				2.6	22	18	289.
<1.0				.28	<10	5	<.1				<.1	<.05		7.0				2.9	16	42	290.
																					291.
																					292.
<1.0				<.10	<10	0	<.1				<.1	<.05		6.6					14	7.4	293.
				.20	<.0	0	<.1				<.1	<.05		7.9				2.3	88	66	294.
																					295.
																					296.
				2.4	<10	15	<.1				.70	.23		6.5					32	15.9	297.
																					298.
																					299.
																					300.
3.0±1.2				.22	15	0	<.1				<.1	<.05		6.4					40	17	301.
																					302.
																					303.
																					304.
				<01	20	0	<.1				<.1	<.05		8.6				13	24	9.0	305.
																					306.
																					307.
																					308.
				1.6	42	5	2.4				0.1	.15		6.4				21.4	50	32	309.
																					310.
																					311.
																					312.
<1.0				.48	10 2	10	<.1				<.1	<.05		7.6				6.4	24.0	5.0	313.
				.34	12.5	10	<.1				<.1	<.05		7.0					38	14.8	314.
																					315.
																					316.
				<.10	19	0	<.1				<.1	<.05		5.9				8.9	28	13	317.
				<.1	12	5	<.1				<.1	<.05		6.4				4.4	34	14	318.
				<.1	13	0	<.1				<.1	<.05		6 2				4.5	28	15	319.
				<.1	39	25	<.1				<.1	<.05		6 1				17.5	56	23	320.
				<.1	43	15	<.1				<.1	<.05		6.1				21	54	25	321.
																					322.
																					323.
				.27	44	U	<.1				<.1	<.05		6.5				23	42	25	324.
				<.10	44	0	<.1				<.1	<.05		6.4				25	38	23	325.
				<.10	12	20	<.1				<.3	<.05		9.3				31	26	74	326.
																					327.
																					328.
				.9	76	5	<.1				<.1	<.05		6.5				40	18	10	329.
																					330.
																					331.
				.60	<10	0	<.1				<.1	<.05		7.7				3.1	32	31	332.
																					333.
<1.0				.22	26	5	<.1				<.1	<.05		8.2					56	89	334.
																					335.
																					336.
				.11	11	10	<.1				<.1	<.05		6 2					82	18	337.
																					338.
																					339.
																					340.

TOWN / SYSTEM / SOURCE	SAFE YIELD (mgd)	MONTH/YEAR	INORGANIC CHEMICALS: Arsenic, As (.05)	Barium, Ba (1.0)	Cadmium, Cd (.01)	Chromium, Cr (.05)	Lead, Pb (.05)	Mercury, Hg (.001)	Nitrate N (10 0) Nitrite	Selenium, Se (.01)	Silver, Ag (.05)	Fluoride, F (2 4)	ORGANIC CHEMICALS: Endrin (.0002)	Lindane (.004)	Methoxychlor (.1)	Toxaphene (.005)	2,4-D (.1)	2,4,5 TP Silvex (.01)	Trihalomethane (.10)
NEW CASTLE																			
New Castle Water Works																			
		SEE PORTSMOUTH WATER DEPT.																	
NEWFIELDS																			
No. 1 (GPW)	.06	1/77	<.01	<1.0	<.01	<.05	<.05	<.001	0.20	<.01	<.05	<.10							
No. 2 & 3 (2 GPW)	.08	5/77	<.01	<1.0	<.01	<.05	<.05	<.001	0.24	<.01	<.05	0.15							
No. 4 (Brk)	400'	1/77	<.01	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	.35							
NEW HAMPTON																			
New Hampton Village Precinct																			
Mountain Pond (surf)		12/76	<.05	<1.0	<.010	<.05	<.05	<.001	<.05	<.01	<.05	<.1	<.0002	<.004	<.1	<.005	<.1	<.01	
NEW LONDON																			
New London Water Precinct																			
Morgan Pond (surf)		4/77	<.05	<1.0	<.010	<.05	<.05	<.001	0.09	<.01	<.05	<.1	<.0002	<.004	<.1	<.005	<.1	<.01	
NEWMARKET																			
Newmarket Water Works																			
Follett's Br. (surf)		10/76	<.05	<1.0	<.01	<.05	<.05	<.001	<.02	<.01	<.05		<.0002	<.004	<.1	<.005	<.1	<.01	
Rt. 155 well (GPW)																			
NEWPORT																			
Newport Water Works																			
Gilman Pond (surf)		1/77	<.05	<1.0	<.010	<.05	<.05	<.001	<.05	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
No. 1 (GPW)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.25	<.01	0.07	.24							
NORTHUMBERLAND																			
Groveton Village Precinct																			
Roaring Br. (surf)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.44	<.01	<.05	.31	<.0002	<.004	<.1	<.005	<.1	<.01	
OSSIPEE																			
Ctr. Ossipee Water Co.																			
Dan Hole Pond (surf)		11/76	<.05	<1.0	<.01	<.05	.05	<.001	<.02	<.01	<.05	.40	<.0002	<.004	<.1	<.005	<.1	<.01	
PEMBROKE																			
Pembroke Water Works																			
No 2 (GPW)	.90	9/77	<.05	<1.0	<.01	<.05	<.05	<.001	.78	<.01	<.05	.27							
Bear Brook (GPW)	.50	9/77	<.05	<1.0	<.01	<.05	<.05	<.002	.32	<.01	<.05	.22							
Concord Line 3 (GPW)	1 00	9/77	<.05	<1.0	<.01	<.05	<.05	<.002	1.03	<.01	<.05	.22							
PETERBOROUGH																			
Peterborough Water Works																			
North Well (GPW)		12/76	<.05	<1.0	<.01	<.05	<.05	<.001	.29	<.01	<.05	.16							
South Well (GPW)		12/76	<.05	<1.0	<.01	<.05	<.05	<.001	.29	<.01	<.05	.11							
Cunningham Pd. Aux) (surf)		12/76	<.05	<1.0	<.01	<.05	<.05	<.001	<.05	<.01	<.05	0.10							
PITTSFIELD																			
Pittsfield Water Workd																			
Berry Pond (surf)		11/76	<.05	<1.0	<.01	<.05	<.05	<.001	<.02	<.01	<.05	.14	<.0002	<.004	<.1	<.005	<.1	<.01	
PLYMOUTH																			
Plymouth Water Works																			
No. 1 (GPW)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.86	<.01	<.05	.12							
No 2 (GPW)		1/78	<.05	<1.0	<.01	<.05	<.05	.002	.51	.01	.05	.15							
PORTSMOUTH																			
Portsmouth Water Works																			
Snerburne (PW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.88	<.01	<.05	1.20*							
Greenland No. 5 (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	3.30	<.01	<.05	1.40*							
Portsmouth No. 1 (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.00	<.01	<.05	1.40*							
Madbury 1 (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	1 39	<.01	<.05	<.10							
Madbury 2 (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.06	<.01	<.05	<.10							
Madbury 3 (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.24	<.01	<.05	.11							
Madbury 4 (GPW)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.40	<.01	<.05	.11							
Bellamy Res (surf)		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.11	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<.1	<.01	
Pease Air Force Base																			
Haven (GPW)																			
Harrison (GPW)																			
Smith (GPW)																			
RAYMOND																			
Raymond Water Works																			
Dug Well (Dug)		4/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.22	<.01	<.05	.21							
Green Hills Estates																			
Point Well (Brk)		12/77	<.05	<1.0	<.05	<.05	<.05	<.001	3.70	<.01	<.05	<.10							
ROCHESTER																			
Rochester Water Dept.																			
Round Pond (surf)	3.8	11/76	<.05	<1.0	<.01	<.05	<.05	<.001	0.04	<.01	<.05	.72*	<.0002	<.004	<.1	<.005	<.1	<.01	
ROLLINSFORD																			
Salmon Falls Village Precinct																			
No. 1 (Pine)	.11																		
No. 2, 3	.13																		
RYE																			
Rye Water District																			
No. 1	.60	6/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.45	<.01	<.05	<.10							
SALEM																			
Salem Water Dept.																			
Canobie Lake (surf)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.09	<.01	<.05	.10	<.0002	<.004	<.1	<.005	<.1	<.01	

RADIONUCLIDES				SECONDARY STANDARDS														OTHERS			
Gross Alpha *	Radium 226	Radium 228	Uranium	Turbidity	Chloride (250)	Color (15 units)	Copper, Cu (1.0)	Corrosivity	Foaming Agents (0.5)	Hydrogen Sulfide (.05)	Iron (.30)	Manganese (.05)	Odor (3 TON)	Ph (6.5-8.5)	Sulfate (250)	TDS (500)	Zinc (5)		Sodium (20.250)	Hardness	Total Alkalinity	
				.3	<10	15	<.1				<.1	.12		6.4					18	21.2	
				.24	10	10	<.1				<.1	<.05		7.2				3.5	30	18	
<1.0				.20	37	0	<.1				<.1	<.05		8.9					16	149	5
				.26	<10	10	.10				<.1	<.05		6.1					26	6.4	
				.48	<10	35	.1				.1	<.05		6.5				2.3	20	5.0	
				.28	22	10	<.1				<.1	.10		8.2					78		
				.38	<10	0	<.1				<.1	<.05		6.6					32	6.4	
<1.0				1.8	36	5	<.31				.14	<.05		6.8				8.5	58	15.	
				.30	<10	5	<.1				.12	<.05		7.0				1.3	14	7.0	
<1.0				.29	10	0	<.1				.12	<.05		7.0					14		
				<.01	64	5	<.17				<.1	<.05		6.4				27	44	21	
				<.01	14	0	<.1				<.1	.07		6.2				8	28	17	
				<.01	26	0	<.1				<.1	<.05		6.1				15	40	18	
				0.1	<10	0	<.1				.48	<.05		6.7					30	22.3	
				0.1	11	0	<.1				.42	.13		6.2					18	13.8	
				3.0	13	10	<.1				1.67	.05		6.5					12	8.5	
<1.0				.31	<10	20	<..				.21	<.05		6.7					18		
				.22	95	5	<.1				.10	.35		6.0				14.4	82	21	
				.48	34	5	<.01				.28	.51		6.3				18	54	18	
1 021.1				.26	55	15	<.1				<.1	.40		7.9				12.9	196	154	
21.0				.20	38	0	.10				<.1	<.05		7.9				14.8	146	88	
<3.0				.22	120	0	.10				.1	<.05		7.7				14.9	248	107	
<3.0				.24	19	0	<.1				<.1	<.05		6.8				8.5	62	27	
<1.0				.26	16	0	<.1				<.1	<.05		6.8				8.6	62	38	
				.32	13	0	<.1				<.1	.06		6.5				8.5	58	28	
				.84	13	5	<.1				.23	.06		6.9				8.0	72	40	
<1.0				.38	10	0	<.1				<.1	<.07		7.1				4.3	48	15	
				.80	29	15	<.1				.30	.23		6.4				12.2	60	26	
				.45	30	10	.11				<.1	<.05		7.0				14.9	54	18	
<1.0				.34	<10	40	.65				.68	<.05		8.2				4.6	16	2.8	
				.24	42	10	<.1				.14	<.05		7.1				19.4	108	68	
<1.0				.34	38	0	<.1				<.1	<.05		6.4						10	

	TOWN / SYSTEM / SOURCE /	SAFE YIELD (mgd)	MM/YY/YEAR	INORGANIC CHEMICALS: Arsenic, As (.05)	Barium, Ba (1.0)	Cadmium, Cd (.01)	Chromium, Cr. (.05)	Lead, Pb (.05)	Mercury, Hg (.001)	Nitrate N (10.0) Nitrite	Selenium, Se (.01)	Silver, Ag (.05)	Fluoride, F (2.4)	ORGANIC CHEMICALS: Endrin (.0002)	Lindane (.004)	Methoxychlor (.1)	Toxaphene (.005)	2,4-D (.1)	2,4,5-TP Silvex (.01)	Trihalomethane (.10)
421	SEABROOK																			
422	Seabrook Water Dept																			
423.	No 1 (GPW) True Rd	.65	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.75	<.01	<.05	.17							
424	No. 2 (GPW) True Rd	.35	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.13	<.01	<.05	.11							
425	No 3 (GPW) Black Snake	.45	3/77	<.05	<1.0	<.01	<.05	<.05	<.001	.98	<.01	<.05	.11							
426.	No 4 (GPW) near Mass line		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.05	<.01	<.05	.10							
427	No 5 (GPW) Aux Mill Lane																			
428	No 6 (GPW) Aux. Mill Lane																			
429	SOMERSWORTH																			
430	Somersworth Water Works																			
431.																				
432	No 1 & 2 (GPW) (.74 + .68)		10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.01	<.01	<.05	<.10							
433	No 3 (GPW)	.20	10/77	<.05	<1.0	<.01	<.05	<.05	<.002	.22	<.01	<.05	<.10							
434	Salmon Falls River	1.0	11/76	<.05	<1.0	<.01	<.05	<.05	<.001	0.11	<.01	<.05	.16	<.0002	<.004	<.1	<.005	<.1	<.01	
435	STEWARTSTOWN																			
436	Riverside Water Works																			
437	Deep Well (DrW)																			
438.	Stewartstown Water Dept.																			
439.	G.F. Well (GPW)		4/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.15	<.01	<.05	0.11							
440	Springs																			
441.	STRATFORD																			
442	No Stratford Water Dept.																			
443.	Kimball Br. (surf)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.05	<.01	<.05	.22	<.0002	<.004	<.1	<.005	<.1	<.01	
444	SUNAPEE																			
445	Sunapee Water Works																			
446	Lake Sunapee (surf)		4/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.05	<.01	<.05	.11	<.0002	<.004	<.1	<.005	<.1	<.01	
447.	SWANZEY																			
448	No. Swanzey Water Dept.																			
449				SEE KEENE WATER WORKS																
450.	TILTON																			
451.	Tilton-Northfield Aqueduct																			
452.	Knowles Pond (surf)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.07	<.01	<.05	.10	<.0002	<.004	<.1	<.005	<.1	<.01	
453.	Brook (surf) (Aux)																			
454	TROY																			
455.	Troy Water Works																			
456.	Fessett Br (surf)		11/76	<.05	<1.0	<.01	<.05	<.05	<.001	0.02	<.01	<.05	.10	<.0002	<.004	<.1	<.005	<.1	<.01	
457.	Drilled Well		2/78	<.05	<1.0	<.01	<.05	<.05	<.002	0.05	<.01	<.05	.59							
458	WAKEFIELD																			
459.	Sanbornville Water Dept.																			
460.	G.P. No 1 (GPW) (AUX)																			
461.	G.P. No. 2 (GPW)		6/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.82	<.01	<.05	<.10							
462.	WALPOLE																			
463.	Walpole Water Dept																			
464.	River Well (GPW)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	5.10	<.01	<.05	.10							
465.	Watkins Hill Well		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	1.05	<.01	<.05	<.10							
466	No. Walpole Village District																			
467.	Sp.		3/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.08	<.01	<.05	< 10							
468.	No. 1																			
469.	No. 2																			
470.	WARNER																			
471.	Warner Village Fire District																			
472.	Sliver Br (surf)		1/76	<.05	<1.0	<.01	<.05	<.05	<.002	<.05	<.01	<.05	<.10	<.0002	<.004	<.1	<.005	<0.1	<.01	
473.	Drilled Well																			
474.																				
475.	WATERVILLE VALLEY																			
476.	Waterville Valley Water Dept																			
477.	No. 1 (GPW)	.35	11/77	<.05	<1.0	<.01	<.05	<.05	<.002	.75	<.01	<.05	1.15							
478	No 2 (GPW)	.10																		
479	WHITEFIELD																			
480.	Whitefield Village Fire Dist.																			
481.	Cherry Pt. Well		12/77	<.05	<1.0	<.01	<.05	<.05	<.002	.22	<.01	<.05	<.10							
482.	No. 2 Bray Hill (DrW)		12/77	<.05	<1.0	<.01	<.05	<.05	<.002	0.12	<.01	<.05	.53							
483	No. 3 Bray Hill (DrW)		12/77	<.05	<1.0	<.01	<.05	<.05	<.002	0.05	<.01	<.05	2.75							
484.	No 5 Bray Hill (DrW)		12/77	<.05	<1.0	<.01	<.05	<.05	<.002	0.65	<.01	<.05	<0.10							
485.	WILTON																			
486.	Wilton Water Works																			
487.	Mill Br. (surf)		12/76	<.05	<1.0	<.01	<.05	<.05	<.001	0.12	<.01	<.05	.10	<.0002	<.004	<.1	<.005	<.1	<.01	
488.	Stoorwell Br.(surf)																			
489	WINCHESTER																			
490.	Winchester Water Works																			
491.	No 1 (GPW)		2/77	<.05	<1.0	<.01	<.05	<.05	<.002	.26	<.01	< 05	11							
492.	No. 2 (GPW)		2/77	<.05	<1.0	<.01	<.05	<.05	< 001	.13	<.01	<.05	.11							
493.	No. 3 (GPW)		2/77	<.05	<1.0	<.01	<.05	<.05	<.001	.92	<.01	<.05	.11							
494.	WINDHAM																			
495.	Windham Estates																			
496.	245' (DrW)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	0.05	<.01	<.05	.37							
497.	790' (DrW)		5/77	<.05	<1.0	<.01	<.05	<.05	<.001	.05	<.01	<.05	.37							
498.	330' (DrW)		5/77	<.05	<1.0	< 01	<.05	<.05	<.001	.05	<.01	<.05	.38							
499.	WOLFEBORO																			
500.	Wolfeboro Water Dept.																			
501.	Upper Beech Pond (surf)		10/76	<.05	<1.0	<.01	<.05	<.05	<.001	0.02	<.01	<.05		<.0002	<.004	<.1	<.005	<.1	<.01	
502	WOODSTOCK																			
503.	No Woodstock Water Dept.																			
504.	Gordon Pond Br. (surf)		5/77	<.05	<1.0	<.01	<.05	<.05	< 001	0.17	<.01	<.05	<.1	<.0002	<.004	<.1	<.005	<.1	<.01	

RADIONUCLIDES				SECONDARY STANDARDS														OTHERS			
Gross Alpha *	Radium 226	Radium 228	Uranium		Turbidity	Chloride (250)	Color (15 units)	Copper Cu (1 0)	Corrosivity	Foaming Agents (0 5)	Hydrogen Sulfide (.05)	Iron (.30)	Manganese (.05)	Odor (3 TON)	Ph (6 5-8.5)	Sulfate (250)	TDS (500)	Zinc (5)		Sodium (20.250)	Hardness	Total Alkalinity	
<1.0					.16	15	0	<.1				<.1	.06		7.5					7.3	90	61	
<1.0					.22	<10	5	<.1				<.1	.42		6.7					6.5	78	53	
<1.0					.24	18	5	<.1				<.1	<.05		7.1					7.2	64	44	
1.2±0.9					.88	12	5	<.1				.20	.10		8.0					7.9	188	92	
					.30	<10	5	<.1				.10	<.05		6.8					4.0	30	17	
					.53	13	20	<.1				<.1	.07		7.0					6.6	42	16	
<1.0					.30	<10	5	<.1				.13	.11		7.4						22	12.2	
					.70	<10	30	.21				.20	.15		7.2					1.8	32	12	
					.26	15	15	<.1				<.1	.05		6.9					7.2	28	6.0	
1.0					.88	<10	10	1.05				.18	<.05		7.0					2.0	20	8.0	
1.0					.27	<10	10	<.1				<.1	<.05		5.9						26	2.8	
					<.1	19	0	<.1				<.1	.15		7.5					9.4	76	48	
					.17	19	10	<.1				<.1	<.05							9.2	46	27	
					.26	18	5	.1				<.1	<.05		7.1					5.9	212	119	
<1.0					<.1	14	5	<.1				<.1	<.05		7.0						34	18	
					.49	10	40	<.1				<.10	<.05		6.9					2.2	18	5	
					.33	41	0					.13	<.05		6.5						44	19	
					2.0	22	10	.01				.07	<.05		7.4					10.4	49	33	
					.80	14	5	.02				.07	<.05		7.2					5.8	125	98	
					.97	10	5	.01				.10	<.05		7.4					15.5	146	90	
					.60	20	25	.01				.06	<.05		7.1					2.9	38	25	
					.74	<10	20	<.1				.22	.05		6.6						20	8.5	
<1.0					.32	23	0	<.1				<.1	<.05		6.8						32	25	
<1 0					.16	13	-	<.1				<.1	<.05		6.9						30	22	
<1.0					4.2	18	0	<.1				.41	<.05		6.8						28	17	
					.30	53	0	<.1				<.1	<.05		7.9					11.5	134	92	
					.24	55	0	<.1				<.1	<.05		7.8					11.3	132	72	
					.26	52	0	<.1				.10	<.05		7.9					11.6	128	72	
					.32	<10	0	.15				<.1	<.05		6.5						16		
					.48	<10	50	.10				.19	<.05		5.0						20	4.0	

APPENDIX D

WATER QUALITY DATA FOR SITES

BARRINGTON

BA-1

The State of New Hampshire

U. S. Water Supply &
Pollution Control Commission
State Laboratory Bldg.
Hazen Drive
Concord, N. H. 03301

Donald F. Bent, Ph.D., Director

Lou's
TEST WELL FILE COPY TO: Joe Murphy
Form: READ INSTRUCTIONS ON REVERSE OF FOLDER PLEASE PRINT (Use ball point pen)

Sender's Name WHITMAN HOWARD Supply in Town of BARRINGTON N. H.

Post office address 45 WILLIAM ST WELLESLEY MASS 02181
(Street or Box #) (Town) (State) (Zip)

Owner's Name HUBBARD GRAVEL PIT Date collected 6-13-77

Source of water 2½" TEST WELL Collected from JET PUMP
(well, spring, etc.) (faucet, pump, etc.)

#26
Depth of well 42 ft. Type of cover and construction 2½" WELL CAP
9AM 40 VAC 24" STATIC 15½" (concrete, wood, etc.)

Distance from source to: septic tank ____ft.; dry well ____ft.; sink drain ____ft.; privy ____ft.;
salt water ____ft.; salted highway 2000 ft.; fertilized land ____ft.

Is top of well on higher level than above items? ____ Type of soil ____

Kind and length of pipe used: iron ____ft.; copper ____ft.; plastic ____ft.; lead ____ft.

Is water suspected as cause of illness? ____ Was water run before collecting? YES

Any type of water treatment used? If so, what? ____

If municipal supply, where located? Fairlee - City of Fairlee with

Give name if supplying:

Juvenile camp ____ Tourist camp ____

Restaurant ____ Hotel or motel ____

Other ____

When was supply last analyzed by this laboratory? ____ Is this a new well? YES

Any changes in supply since previous analysis? If so, what? ____

Is analysis for FHA loan? ____ VA loan? ____ Bank loan? ____ Farmer's Home loan ____

Laboratory No. 55935 TEST WELL: Date Rec'd. JUN 21 1977

Turbidity	Tot. Dis. Solids	Odor	Color	Radiological	Spec. Conduct.	pH
			0			6.7
Nitrates/Nitrites	**Sodium**	**Chloride**	**Hardness**	**Iron**	**Copper**	**Manganese**
<0.1/0		<10.0	6.0	<0.1/0	<.1	<.
Phen. Alkal.	**Total Alkal.**	**Lead**	**Fluoride**	**Phosphate**	**M.B.A.S.**	**Zinc**
	5.0					
Arsenic	**Barium**	**Cadmium**	**Chromium**	**Mercury**	**Selenium**	**Silver**

Classification None

Remarks

Coliform Not Run per 100 ml.

Omitted, Zero old

Date completed JUN 28 1977

BARRINGTON

BA-2

The State of New Hampshire
Water Supply and Pollution Control Commission
Prescott Park
105 London Road
Concord 03301

RICHARD S KINNIBURGH
CHIEF OF LABORATORIES

TABLE 4. SANITARY WATER ANALYSIS

PARTS PER MILLION

Dover Water Department
Dover,
New Hampshire 03820

Serial number	43313	43314	43453	43454
Supply of or samples from: PUBLIC SUPPLY	Sample #1 2 hrs. pumping	Sample #2 24 hrs. pumping	48 hrs. pumping	72 hrs. pumping
Date collected	12/1/70	12/2/70	12/3/70	12/4/70
Turbidity	0	0	0	0
Sediment	2	2	1	1
Odor	0	0	0	0
Color	10	10	5	15
Free ammonia nitrogen				
Alb. ammonia nitrogen				
pH	6.6	6.5	6.9	6.6
Nitrate nitrogen	.30	.15	.15	.20
Nitrite nitrogen	Trace	--	Trace	--
Chloride	4.5	3.0	3.0	3.0
Hardness	26	36	34	30
Iron	less than .1	less than .1	less than .1	less than .1
Copper	less than .1	less than .1	less than .1	less than .1
Lead				
Phenolphthalein Alkalinity	0	0	0	0
Total Alkalinity	17	18	18	18
Manganese	less than.05	less than.05	less than .05	less than .05
Fluoride				
Polyphosphate				
Synthetic Detergent (LAS)				
Coliform organisms in 0.001 c.c.				
Coliform organisms in 0.01 c.c.				
Coliform organisms in 0.1 c.c.				
Coliform organisms in 1 c.c.				
Coliform organisms in 10 c.c.				
Coliform MPN per 100 c.c.	less than 2	less than 2	less than 2	less than 2

RESULTS AS INDICATED

CHIEF OF LABORATORIES

*Odor 1, very faint; 2, faint; 3, distinct; 4, decided; 5, very strong. Turbidity and sediment: 1, very slight; 2, slight; 3, considerable, 4, heavy.

The State of New Hampshire

N. H. Water Supply &
Pollution Control Commission
State Laboratory Bldg.
Hazen Drive
Concord, N. H. 03301

Donald F. Bent, Ph.D., Director

Low $

READ INSTRUCTIONS ON REVERSE OF FOLDER

TEST WELL FOR COPY TO: PLEASE PRINT (Use ballpoint pen)
FORM, JOE MURPHY

Sender's Name WHITMAN HOWARD Supply in Town of BARRINGTON N. H.

Post office address 45 William ST WELLESLEY MASS 02181
(Street or Box #) (Town) (State) (Zip)

Owner's Name HUBBARD'S GRAVEL PIT Date collected 6-13-77

Source of water 2½" TEST WELL Collected from IN PUMP
(well, spring, etc.) (faucet, pump, etc.)

#26

Depth of well 42 ft. Type of cover and construction 2½ WELL CAP
(concrete, wood, etc.)

GPM 40 VAC 24" STATIC 15'9"

Distance from source to: septic tank ____ ft.; dry well ____ ft.; sink drain ____ ft.; privy ____ ft.;
salt water ____ ft.; salted highway 2000 ft.; fertilized land ____ ft.

Is top of well on higher level than above items? ____ Type of soil ____

Kind and length of pipe used: iron ____ ft.; copper ____ ft.; plastic ____ ft.; lead ____ ft.

Is water suspected as cause of illness? ____ Was water run before collecting? YES

Any type of water treatment used? If so, what? ____

If municipal supply, where located? Faucet - City of Rochester

Give name if supplying:

Juvenile camp ____ Tourist camp ____

Restaurant ____ Hotel or motel ____

Other ____

When was supply last analyzed by this laboratory? ____ Is this a new well? YES

Any changes in supply since previous analysis? If so, what? ____

Is analysis for FHA loan? ____ VA loan? ____ Bank loan? ____ Farmer's Home loan ____

Laboratory No. 55935 TEST WELL: Date Rec'd JUN 21 1977

Turbidity	Tot. Dis. Solids	Odor	Color	Radiological	Spec. Conduct.	pH
			0			6.7
Nitrates/Nitrites	**Sodium**	**Chloride**	**Hardness**	**Iron**	**Copper**	**Manganese**
<0.10		<10.0	6.0	<0.10	<.1	<.05
Phen. Alkal.	**Total Alkal.** ✓	**Lead**	**Fluoride**	**Phosphate**	**M.B.A.S.**	**Zinc**
	5.0					
Arsenic	**Barium**	**Cadmium**	**Chromium**	**Mercury**	**Selenium**	**Silver**

Classification None

Remarks

Coliform Not Run per 100 ml.

Contact Form color

Date completed JUN 28 1977

DOVER

DO-2

A third well on Gerrish Brook (GB-102) in Madbury produced 350 gpm, but it was found to contain an objectionable quantity of iron and manganese. A summary of the analysis made by the State Department of Health and Welfare is listed below:

Well	Iron & Manganese (in ppm)	Chlorides (in ppm)	pH	Hardness (in ppm)	Color (in ppm)	MPN
PH-105	<0.1	4.5	7.6/6.9	18/16	0	<2/4.7
PH-107	<0.1	4.0	6.2	21	0	<2
GB-102	1.33	5.0	7.0	20	30	<4.9

The above table is indicative that a good quality water could be obtained from the Pudding Hill wells. These wells were subsequently turned over to the General Services Administration of the Federal Government, and it is our understanding that they were later purchased by the City of Dover.

We have estimated the ground-water potential of the Pudding Hill area in much the same manner as previously described for The Hoppers. Prior to construction of the Bellamy Dam and Reservoir on the Bellamy River in the 1950's, the Bellamy River had a watershed of 26.6 square miles at the site of the R. B. Ireland Well. With the Bellamy Reservoir and filter plant operating at capacity (which is usually the case during dry-weather), 22.4 square miles of this watershed are diverted, with the exception of a 1 mgd release required to satisfy the riparian rights of certain downstream claimants. This results in a net tributary area to the Pudding Hill area of about 4.2 square miles. Once again, we have assumed the extent of the water-bearing sand and gravel deposits to be similar to the limits of the surface deposits; this may or may not be the case. This results in a total storage area of 385 acres and an estimated effective storage volume of 780 million gallons. Based on the original watershed tributary to the Ireland Well, this indicates a safe yield of 7.2 mgd, while the safe yield is reduced to about 3.2 mgd now that the Bellamy Dam has been constructed. It is interesting to compare this figure with a summation of the quantity of water pumped from the wells which have already been installed in the area:

R. B. Ireland Well	550 gpm
PH-105	500+
Ph-107 (Mast Road Well)	800+
	1,850 gpm = 2.66 mgd

It is our opinion that Dover is not likely to obtain more than 3 mgd of safe yield from the Pudding Hill area. We have further modified this figure so that our studies have not been dependent on obtaining a total of more than 2.5 mgd from the Pudding Hill area, or about 1.7 mgd not including the Ireland Well. Because of its proximity to the highly developed portions of Dover, this source should be observed and explored more thoroughly prior to development of any new supplies.

JAN 12 1966

DURHAM

DU-1

The State of New Hampshire

N. H. Water Supply &
Pollution Control Commission
State Laboratory Bldg.
Hazen Drive
Concord, N. H. 03301

Donald F. Bent, Ph.D., Director

#29 READ INSTRUCTIONS ON REVERSE OF FOLDER

PLEASE PRINT Test Well

Sender's Name WHITMAN & HOWARD Supply in Town of LEE N. H.

Post office address 45 WILLIAM ST. (Street or Box #) WELLESLEY (Town) MASS. (State) 02181 (Zip)

Owner's Name PORTSMOUTH, N.H. Date collected 7-1-77

Source of water 2½" TEST WELL #2 (well, spring, etc.) Collected from 1¼" PUMP (faucet, pump, etc.)

Depth of well 49' ft. Type of cover and construction 2½" WELL CAP STEEL (concrete, wood, etc.)

Distance from source to: septic tank ..... ft.; dry well ..... ft.; sink drain ..... ft.; privy ..... ft.; salt water 1700? ft.; salted highway 800 ft.; fertilized land ..... ft.

Is top of well on higher level than above items? ..... Type of soil .....

Kind and length of pipe used: iron ..... ft.; copper ..... ft.; plastic ..... ft.; lead ..... ft.

Is water suspected as cause of illness? NO Was water run before collecting? YES

Any type of water treatment used? If so, what? NO.

If municipal supply, where located? .....

Give name if supplying:

Juvenile camp ..... Tourist camp .....

Restaurant ..... Hotel or motel .....

Other .....

When was supply last analyzed by this laboratory? ..... Is this a new well? YES

Any changes in supply since previous analysis? If so, what? .....

Is analysis for FHA loan? ..... VA loan? ..... Bank loan? ..... Farmer's Home loan .....

Laboratory No. 57614 Test Well Date Rec'd July 12, 1977

Turbidity	Tot. Dis. Solids	Odor	Color	Radiological	Spec. Conduct.	pH
			10			7.0
Nitrates/Nitrites	**Sodium**	**Chloride**	**Hardness**	**Iron**	**Copper**	**Manganese**
0.20		<10.	14.	.12	<.10	.17
Phen. Alkal.	**Total Alkal.**	**Lead**	**Fluoride**	**Phosphate**	**M.B.A.S.**	**Zinc**
	15.0					
Arsenic	**Barium**	**Cadmium**	**Chromium**	**Mercury**	**Selenium**	**Silver**

Classification .....

Remarks

Richard J. Walsh, Jr.

Coliform ..... per 100 ml.

Date completed 1 2 1977

EPPING

EP-1

STANDARD WATER ANALYSIS REPORT

Orlando Laboratories, Inc.

P. O. Box 8008 • Orlando, Florida 32856 • 305/843-1661

Report to: Layne New England

Appearance: Clear

Date: 18 Aug. 78

Sampled by: Client

Report Number: 15605

Identificati: Well #7 21/2
Epping, N. H.

METHODS

This water was analyzed according to "Standard Methods for the Examination of Water and Wastewater," Latest Edition, APHA, AWWA and WPCF.

RESULTS

Determination	Data Significance	mg/l	Determination	Data Significance	mg/l
Total Dissolved Solids	x.	120	Total Hardness, as $CaCO_3$	x.	54
Phenolphthalein Alkalinity, as $CaCO_3$	x.	0	Calcium Hardness, as $CaCO_3$	x.	42
Total Alkalinity, as $CaCO_3$	x.	18	Magnesium Hardness, as $CaCO_3$	x.	12
Carbonate Alkalinity, as $CaCO_3$	x.	0	Calcium, as Ca	x.	17
Bicarbonate Alkalinity, as $CaCO_3$	x.	18	Magnesium, as Mg	.x	2.9
Carbonates, as CO_3	x.	0	Sodium, as Na	x.	14
Bicarbonates, as HCO	x.	22	Iron, as Fe	.x	0.02
Hydroxides, as OH	x.	0	Manganese, as Mn	.x	<0.05
Carbon Dioxide, as CO_2	x.	37	Copper, as Cu	.x	<0.1
Chloride, as Cl	x.	34	Silica, as SiO_2	x.	13
Sulfate, as SO_4	x.	5	Color, PCU	x.	0
Fluoride, as F	.x	<0.1	Odor Threshold	x.	0
Phosphate, as PO_4	.x	0.51	Turbidity, NTU	x.	0.44
pH (Laboratory)	.x	6.0			
pHs	.x	8.8			
Stability Index	.x	11.7			
Saturation Index	.x	-2.8			

Signed: Gail Blank
Chemist

"WORLD'S LARGEST WATER DEVELOPERS"

Layne - NEW ENGLAND COMPANY
A BRANCH OF LAYNE-NEW YORK COMPANY, INC.
WATER WELLS • WELL PUMPS • WATER TREATMENT
ASSOCIATED LAYNE WATER SUPPLY COMPANIES OPERATE THROUGHOUT THE WORLD

15 RYDER STREET
Arlington, Mass. 02174
PHONE 617-648-5300

relatively shallow and unsuitable for the development of gravel packed wells.

Well 13. The well was driven on the Hartford property adjacent to and north of New Route 101 bypass in West Epping. We note that the overall depth was 41' and logs indicate the formation color change from the Waye property to this location. Sampling indicates the overburden at "Waye Site" to consist completely of yellow colored sand to the gray silt and clays over a distance of 4300'. Because of the gray silt and clay, the site proved unsuitable.

Well 14 and 15. Both wells were driven in the Lavoie property 5000' west of Layne Well #1 off Freemont Road. The type and depth in material were unsuitable for well construction.

Well 16. Off Old Delaney Road toward Lamprey River. This well penetrated 47' of blue clay, silt and clay. The site was unsuitable and the pipe removed.

Well 17. This well was driven about 3000' up stream from Well 16. The well, driven from approximately the same elevation as #16 proved to be 21' deeper with the material basically gray clay and hard pan. The well is unproductive.

Well 18. This well was screened at two different depths in an effort to locate a high producing aquifer. However, due to a high percentage of silt and clay. The 20GPM flow would not clear up. The material was unsuitable for development of a gravel packed well. Both screen and well was removed.

Well 19 and 19A. Both wells were driven on the property of Woodward, across from the Star Speedway and approximately 500' south, off the ole Route 101. The shallow depths in both cases indicated the site to be uisuitable.

Summary and Recommendation

The results of our recent test program indicate that the most favorable location tested was the "Waye property" in West Epping. The analysis of the water sample was included in our first billing and indicated the water to be low in iron and manganese and of a quality suitable for public water supply purposes.

We have estimated that the potential from a gravel packed well at this location would be in the order of 200 GPM per well with the possibility of an additional well in the same area. In the event further tests prove satisfactory, additional land could

GREENLAND

GR-1

Laboratory No. D-J-6-1-2

Turbidity	Tot. Dis. Solids	Odor	✓ Color	Radiological	Spec. Conduct.	✓ pH
			(25)			7.9
✓ Nitrates/Nitrites	Sodium	✓ Chloride	✓ Hardness	✓ Iron	Copper	✓ Manganese
<0.10		16	(106)	.14		(.09)
Phen. Alkal.	✓ Total Alkal.	Lead	✓ Fluoride	Phosphate	M.B.A.S.	Zinc
	108		<0.10			
Arsenic	Barium	Cadmium	Chromium	Mercury	Selenium	Silver

Classification None Coliform Not Run per 100 ml.

Remarks

Date completed JAN 0 3 1978

8'-77

Long Form

READ INSTRUCTIONS ON REVERSE OF FOLDER (#1)

PLEASE PRINT PUBLIC SUPPLY

Sender's Name City of Portsmouth Supply in Town of ..... N. H.

Post office address 200 Islington St Portsmouth NH 03801
(Street or Box #) (Town) (State) (Zip)

Owner's Name ..... Date collected Dec. 7, 1977 (2 P.M.)

Source of water 8" Test Well Collected from .....
(well, spring, etc.) (faucet, pump, etc.)

Depth of well 74' ft. Type of cover and construction State Gravel Pit Greenland NH
(concrete, wood, etc.)

Distance from source to: septic tank .....ft.; dry well .....ft.; sink drain .....ft.; privy .....ft.;
salt water .....ft.; salted highway .....ft.; fertilized land .....ft.

Is top of well on higher level than above items? ..... Type of soil .....

Kind and length of pipe used: iron .....ft.; copper .....ft.; plastic .....ft.; lead .....ft.

Is water suspected as cause of illness? ..... Was water run before collecting? .....

Any type of water treatment used? If so, what? .....

If municipal supply, where located? .....

Give name if supplying:

Juvenile camp ..... Tourist camp .....

Restaurant ..... Hotel or motel .....

Other .....

When was supply last analyzed by this laboratory? ..... Is this a new well? .....

Any changes in supply since previous analysis? If so, what? .....

Is analysis for FHA loan? ..... VA loan? ..... Bank loan? ..... Farmer's Home loan .....

The State of New Hampshire

N. H. Water Supply & Pollution Control Commission
State Laboratory Bldg.
Hazen Drive
Concord, N. H. 03301
Donald F. Bent, Ph.D., Director

Richard J. Walsh, Jr

HUDSON

HU-1

REITZEL ASSOCIATES

Consulting Engineers Water and Waste Analysis
Massachusetts Approved Laboratory
10 Kendall Place, Boylston, Mass. 01505 U.S.A.
Phone (617) 869-2893
Nicolas M. Reitzel, R.P.E. - Mass. No. 19701

DRINKING WATER ANALYSIS REPORT

R.A. Invoice No. 7076

R.E. CHAPMAN — Name
10-30-78 10 AM — Sample Date
30 N. Main STreeT — Billing Address
Oakdale, Mass 01539
HUDSON WATER CO. — Sample Address
WEBSTER ST. HUDSON, NH
8356231 — Phone

350 GPM. After Pumping 4 Hours # 1

TEST RESULTS Bacteria - Total Coliform _____ Count/100 ml.
Others - Type _____ Count/100 ml.

Chemical

Test	Result		Test	Result	
Color		Pt-Co Units	Fluoride		mg/l
Turbidity		J.T. Units	Silica		mg/l
Threshold Odor No.			Sodium		mg/l
Nitrate Nitrogen		mg/l	Sulfide		mg/l
Iron	1.1	mg/l	Acidity ($CaCO_3$)		mg/l
Manganese	1.3	mg/l	Alkalinity ($CaCO_3$)		mg/l
MBAS (Detergents)		mg/l	Residual Chlorine		mg/l
pH	6.4				
Conductivity		NaCl			
Total Hardness	108	$CaCO_3$			
Chloride	39	mg/l			
Nitrite Nitrogen		mg/l			
Ammonia Nitrogen		mg/l			

Blank indicates no test was performed

Fee - $
This is the only invoice you will receive.

COMMENTS

the recommended limits for iron and manganese are 0.3 and 0.05 mg/L respectively. Higher levels are generally not considered a health hazard but may contribute to staining and nuisances.

Approved E Fay Supervisor
Agency

Water meets requirements of P.H.D.
with respect to tests performed and reported here.

_____ Supervisor

New England Testing Laboratory, Inc.

Chemists Bacteriologists

TEL. 424-6314

MILK & ICE CREAM
FOODS & BEVERAGES
WATER & WASTES
METALS & TEXTILES
INDUSTRIAL MICROBIOLOGY

4 FALCON DRIVE, MERRIMACK, N.H. 03054

Certificate of Analysis

TO: Hudson Water Co.
8 Winn Ave.
Hudson, N. H. 03051

DATE REPORTED: 2-7-80
DATE RECEIVED: 2-4-80
ORDER NO.
CASE NO.

SAMPLE DESCRIPTION page 2 of 2

	Small Tarnic	Highland Well
Turbidity, FTU	<2	<2
Color, Pt Co Units	5	5
pH	6.55	6.55
Total Alkalinity as $CaCO_3$, mg/l	30	30
Total Hardiness as $CaCO_3$, mg/l	50	40
Calcium, as $CaCO_3$ mg/l	40	30
Magnesium, mg/l	10	10
Sodium, estimated mg/l	2.6	2.7
Iron, Ferrous, mg/l	.50	.02
Iron, Total, mg/l	.68	.08
Manganese, mg/l	.10	.50

Our letters and reports are for the exclusive use of the client to whom they are addressed, and their communication to any others, or the use of the name of the New England Testing Laboratory, Inc. must receive our prior written approval. Our letters and reports apply only to the sample tested and are not necessarily indicative of the qualities of apparently identical or similar products. Samples not destroyed in

FEE : : Hudson

New England Testing Laboratory, Inc.

Chemists Bacteriologists

TEL. 424-6314

Jan 2/15/80

MILK & ICE CREAM
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METALS & TEXTILES
INDUSTRIAL MICROBIOLOGY

* all H wells are located at Hu-1

4 FALCON DRIVE, MERRIMACK, N.H. 03054

Certificate of Analysis FC 2/14

TO: Hudson Water Company
9 Winn Ave.
Hudson, N. H. 03051

DATE REPORTED: 2-7-80
DATE RECEIVED: 2-4-80
ORDER NO.
CASE NO.

SAMPLE DESCRIPTION 4 water samples submitted for analysis

	Greeley Well	Glover Well
Turbidity, FTU	<2	<2
Color, Pt Co Units	5	10
pH	6.6	6.55
Total Alkalinity as $CaCO_3$, mg/l	50	40
Total Hardness as $CaCO_3$, mg/l	60	60
Calcium, as $CaCO_3$, mg/l	50	50
Magnesium, mg/l	10	10
Sodium, estimated mg/l	2.3	3.0
Iron, Ferrous, mg/l	1.55	.35
Iron, Total, mg/l	2.30	.44
Manganese, mg/l	.75	.20

Our letters and reports are for the exclusive use of the client to whom they are addressed, and their communication to any others or the use of the name of the New England Testing Laboratory Inc. must receive our prior written approval.

HUDSON

HU-2

CHEMICAL ANALYSIS REPORT

No. Hudson 2-79c

Charge $10.00

Camden and Rockland Water Company
P.O. Box 689 5 Lindsey Street
Rockland, Maine 04841
Tel.: (207)- 594-8428

Analysis for: Hudson Water Co.

COLLECTED:

Date & Time: 2 April 79

By Whom: Hudson Water Co.

Fe Std Dev ± .03 Phenanthroline method
Fluoride electrode

ANALYZED:

Date & Time: 4-5-79 4pm

By Whom: Tom Jones

SAMPLING SOURCE	Bottle No.	pH	Turb	Fluoride	% Rem.	Mn	Fe
Dick Roy Dowel		5.9	.35	<.3	(99)	.170	.193

KENSINGTON

KE-3

The State of New Hampshire
Water Supply and Pollution Control Commission

STATE LABORATORY BUILDING
HAZEN DRIVE
CONCORD, NEW HAMPSHIRE 03301

DONALD F. BENT, PH.D. LABORATORY DIRECTOR

63-78

Safe Drinking Water Limits

Should not exceed the following:

(7.0 = neutral)
6.0 - 9.0 units private
6.5 - 8.5 units public

Nitrate/nitrite/nitrogen mg/l (Higher levels unsafe for infant feeding) 2.5mg/l or less is normal)

Chloride - 250mg/l preferably less than 50mg/l. If elevated and regularly consumed by heart patients, sodium level should be determined). (30mg/l or less is normal).

Hardness { 0-75mg/l soft; 75-150mg/l medium; 150mg/l-up hard

Iron - 0.30mg/l.
Manganese - 0.05mg/l.
(Higher concentrations of iron and manganese are not health hazards - they are taste and color nuisances)

Fluoride - 2.4mg/l. (Higher concentrations can cause motling of teeth). (1.0mg/l considered desirable).

Total Coliform Count 4 or less - considered safe. 5 to 4 - acceptable. Greater than 4-unacceptable.

The State of New Hampshire
Water Supply and Pollution Control Commission

73695 WATER ANALYSIS REPORT

Laboratory No. 73695 Date received APR 25 197[illegible]

Analysis of this water sample shows its quality, *at the time of collection*, to be as indicated below:

- [X] a. *Satisfactory.* Safe for drinking and all household purposes.
- [ ] b. Shows undesirable bacterial contamination, but otherwise of good quality. This result is most frequently due either to inadequate well construction or infection of the sample during collection. Improvement in construction, followed by disinfection of the well, may be all that is required to remedy the situation. This water is to be considered unsafe for drinking so long as the contamination persists.
- [ ] c. Of more or less poor quality. The bacterial and/or chemical findings are suggestive of contamination from a potentially dangerous source such as a sanitary waste disposal system. Safety for drinking is questionable until the probable source of contamination has been determined. If the location of nearby septic systems (or similar waste materials or animal or human origin) leads you to conclude that these could not be a contaminating influence on the water supply, the water is probably safe for drinking. However, you should secure periodic analyses (about every 6 to 12 months) to determine whether quality is deteriorating or remaining the same.
- [ ] d. Poor quality but not readily attributable to contamination from a sanitary disposal system. The results are suggestive of drainage from a salted highway or agricultural land. Safe for drinking (unless *b* or *e* is also checked) but may become unpalatable because of the high salt content. Chlorination of the supply could also produce this result.
- [ ] e. Unsatisfactory. Bacterial and/or chemical quality is indicative of contamination from a potentially dangerous source. UNSAFE FOR DRINKING. Removal of the contaminating source may result in gradual improvement in quality but such may require considerable time. It is probably more advisable to seek an alternate source. Iron = 2.7ppm + Manganese = 0.06ppm
- [X] f. In addition to any conditions checked above, this supply shows excessive amounts of iron and manganese. While not a health problem, these can result in staining of laundry or bathroom fixtures. An iron removal unit may be required for correction of the problem.
- [ ] g. Unsafe for infants due to high nitrate content.

Water Testing Laboratory
Hazen Drive
Concord, N. H. 03301

Iron Bacteria Not Found - Sediment is Rock Dust

Richard J. Walsh, Jr., *Supervisor*

If you find it necessary to write us regarding this report, you must include the Laboratory Number shown above as well as the Town in which the supply is located. The Number alone is not sufficient for identification.

Turbidity = 7.1 NTU's, very High

Laboratory No. 73695 PUBLIC Date Rec'd APR 25 197[illegible]

✓ Turbidity	Tot. Dis. Solids	Odor	✓ Color	Radiological	Spec. Conduct.	pH
7.1			35			8.0
Nitrates/Nitrites	**✓ Sodium**	**Chloride**	**Hardness**	**Iron**	**✓ Copper**	**Manganese**
0.15	5.1	15	96	2.7	<0.01	0.06
Phen. Alkal.	**✓ Total Alkal.**	**Lead**	**Fluoride**	**Phosphate**	**M.B.A.S.**	**Zinc**
	79		<0.10			

FE BACT. - Not found - Sediment is rock dust
Turbidity = 7.1 NTU's, very High.

Classification Gf Coliform <1 per 100 ml.

Remarks: Iron = 2.7ppm + Manganese = 0.06ppm.

Date completed MAY 02 1978

For further information please call 271-3445 or 271-3223

FRANCIS D. HOUGHTON
CHIEF OF LABORATORIES

The State of New Hampshire
Water Supply and Pollution Control Commission
Prescott Park
105 Loudon Road
Concord 03301

SANITARY WATER ANALYSIS
PARTS PER MILLION

Wilmington Pump Supply
637 Woburn St.
Wilmington, Mass. 01887

#2-75

				1/30/75
Serial number	18987			
Supply of or samples from: well # 2 pump				
Date collected	1/20/75			
*Turbidity	0			
*Sediment				
*Odor				
Color	5			
Free ammonia nitrogen				
Alb. ammonia nitrogen				
pH	8.1			
Nitrate nitrogen	2.79			
Nitrite nitrogen	trace			
Chloride	24.			
Hardness	102			
Iron	.11			
Copper	Less .1			
Lead				
Phenolphthalein Alkalinity				
Total Alkalinity				
Manganese				
Fluoride	.15			
Polyphosphate	Less .1			
Synthetic Detergent (LAS)				
Coliform M.P.N. per 100 c.c.				
Total Coliform count per 100 ml.	Less than 1			

MADBURY

MA-1

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

Retrieved

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 6.--Chemical analyses of water samples from selected wells and springs in southeastern New Hampshire--Continued

(Analyses by U. S. Geological Survey unless indicated otherwise)

Well	Geologic unit	Date of collection	Temperature (°F)	Parts per million																							Remarks 2/
				Silica (SiO_2)	Dissolved iron (Fe)	Total iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Residue on evaporation at 180° C) Dissolved solids	Hardness as $CaCO_3$ Calcium and magnesium	Hardness as $CaCO_3$ Noncarbonate	Specific conductance (micromhos at 25° C)	pH	Color 1/	
Strafford County																											
Barrington 1	Outwash and shore deposits	10- 3-56	50	-	0.03	-	-	-	-	-	-	20	-	96	-	-	-	63	47	338	6.3	-	
Dover sp 3	do.	10- 3-56	50	-	.02	-	-	-	-	-	-	11	-	4.0	-	-	-	13	4	39	6.4	-	
Dover 5	Ice-contact deposits	9-24-52	-	-	.5	-	-	-	-	-	-	-	-	9.2	-	.2	-	-	-	-	6.9	-	Analyzed by New Hampshire State Dept. Health
5	do.	5-14-54	-	-	.2	-	-	-	-	-	-	-	-	7.6	-	.2	-	-	-	-	7.2	-	Do.
6	do.	9-24-52	-	-	3.0	-	-	-	-	-	-	-	-	6.2	-	.0	-	-	-	-	6.4	-	Do.
6	do.	5-14-54	-	-	3.0	-	-	-	-	-	-	-	-	8.2	-	.3	-	-	-	-	6.3	-	Do.
11	do.	5-13-54	46	14	3/<.1	-	.01	3.5	.8	3.2	-	14	1.6	4.0	.0	.4	36	12	1	43	7.0	3	
24	do.	5- 3-54	48	6.6	-	.08	.03	3.9	.5	8.7	-	4	5.0	9.5	.0	11	52	9	6	72	6.0	5	
25	do.	4-21-55	-	-	<.1	-	-	-	-	-	-	-	-	11	-	.2	-	-	-	-	6.1	-	Analyzed by New Hampshire State Dept. Health
Farmington 1	do.	5-22-53	44	-	<.1	-	-	-	-	-	-	-	-	4.4	-	.0	-	-	-	-	6.4	-	Do.
1	do.	5-10-54	-	-	<.1	-	-	-	-	-	-	-	-	5.4	-	.2	-	-	-	-	6.3	-	Do.
4	do.	10- 3-56	49	-	.03	-	-	-	-	-	-	19	-	27	-	-	-	48	32	253	6.0	-	
Lee 5	do.	5-14-54	47	11	-	.60	.01	6.2	1.8	2.5	-	23	2.4	4.5	.0	.6	48	23	4	68	7.2	2	
6	Till	2-11-54	-	13	.00	.07	.00	21	2.8	14	4.2	62	15	19	.1	8.0	134	64	13	211	7.4	15	Zinc (Zn) 0.10 ppm; lithium (Li) 0.4 ppm; phosphate (PO_4) 0.7 ppm.
Madbury 4	Ice-contact deposits	5-13-54	48	13	3/<.1	-	.00	16	3.6	7.9	-	54	15	8.0	.1	.6	102	55	10	163	7.5	2	
11-14	do.	6-14-56	50	12	.06	.16	.00	8.1	2.3	5.4	-	27	7.7	6.3	.0	3.1	67	30	8	96	6.8	18	Turbidity 0.5 ppm as SiO_2; free carbon dioxide (CO_2) (calc.) 6.8 ppm; alkalinity as $CaCO_3$ (calc.) 22 ppm.
Rochester 10	Outwash and shore deposits	5-10-54	53	12	-	.37	.00	5.8	1.8	7.0	-	23	12	3.5	.2	.3	57	22	3	78	7.8	2	
18	Bedrock	10-20-55	54	10	.07	.24	.03	9.2	2.1	10	1.9	55	8.8	1.2	1.0	.1	72	32	0	113	8.2	3	Lithium (Li) 0.2 ppm; phosphate (PO_4) 0.10 ppm. Radiochemical analysis available
Rollinsford 8	Ice-contact deposits	10- 3-56	49	-	.04	-	-	-	-	-	-	97	-	8.2	-	-	-	43	0	227	8.3	-	
Rollinsford sp 1	do.	3- 3-55	49	-	.85	-	-	-	-	-	-	-	-	12.6	-	.8	-	-	-	-	6.6	25	Analyzed by New Hampshire State Dept. Health.

MADBURY

MA-3

Barbadoes Pond Area

The area encompassing Barbadoes Pond is composed of a third extensive deposit of sand and gravel in which the Barbadoes Well is founded. It has been stated that the developer of the Barbadoes Well pumped it in excess of a 5 mgd rate at the time of completion of the well. Records of discharge and corresponding drawdown indicate a straight line relationship to at least 3 mgd, thus suggesting a rather substantial safe yield for this well. Should a hydraulic relationship exist (and we think it does) between Barbadoes Pond and the waters of Mallego Brook and the Bellamy River (upstream of Bellamy Dam), it is possible that a total storage area of 625 acres and 1,180 million gallons of effective storage volume are capable of producing a safe yield of 8.7 mgd. However, increasing the pumping rate from the existing well would only tend to increase the already prevalent iron content of this source. Possibly another well could be developed to the north of Littleworth Road and to the east of French Cross Road which would penetrate this same aquifer and produce a water relatively iron free, but we have not based our studies upon supplying more than 1 mgd from the Barbadoes Pond area.

Summary

Our projections of population and water consumption for Dover through the year 2010 have, when compared with the possible yield of ground-water sources investigated and test-pumped, indicated that the water supply demands of the City can be met completely from ground-water sources at least until the year 2010 and quite probably for some time thereafter. It is very unlikely that any other city in New Hampshire is so well endowed with ground-water resources that the water supply demands of a population of more than 30,000 persons can be met entirely with groundwater.

Before actual development of any new sources of supply, it would be advisable for the City to do the following:

1. Make weekly observations of drawdown in all available observation wells adjacent to the R. B. Ireland Well as well as in Pudding Hill Wells (Nos. 105 and 107) with the Ireland Well operating at 450 gpm and 0 gpm respectively.

2. Install a permanent well of 1 mgd capacity in The Hoppers in the vicinity of D20 and D21 and conduct a pumping test of at least one month duration or until the iron content of the water exceeds 0.5 ppm. Daily analyses should be made of the iron and manganese content with samples submitted to the State Department of Health and Welfare weekly for bacteriological and chemical analyses.

NEWFIELDS

NF-1

Newfield

RECEIVED
MAR 18 19
S-E-A CONSULTA

The State of New Hampshire
Water Supply and Pollution Control Commission
Prescott Park
105 Loudon Road
Concord 03301

FRANCIS D. HOUGHTON
CHIEF OF LABORATORIES

SANITARY WATER ANALYSIS
PARTS PER MILLION

J. T. Morine
Concord St.
N. Reading, Mass. 01451

2/13/75

Serial number	19478			
Supply of or samples from: Newfields 2 1/2" test well				
Date collected	1/31/75			
*Turbidity	0			
*Sediment				
*Odor				
Color	0			
Free ammonia nitrogen				
Alb. ammonia nitrogen				
pH	7.7			
Nitrate nitrogen	Less than .1			
Nitrite nitrogen	trace			
Chloride	18.			
Hardness	52			
Iron	.13			
Copper	Less .1			
Lead				
Phenolphthalein Alkalinity	0			
Total Alkalinity	111			
Manganese	.05			
Fluoride	Less .1			
Polyphosphate				
Synthetic Detergent (LAS)				
Coliform M.P.N. per 100 c.c.				
Total Coliform count per 100 ml.	Less than 1			

S-E-A CONSULTANTS INC.

PELHAM

PE-1

Pelham 1974

Keyes Assn.

Copy of Report on Chemical
Analysis of Water

Sources: Test Well No. 1-73 (Golden Brook)
Test Well No. 2-73 (Beaver Brook)

(Data in parts per million unless otherwise noted)

	Well No. 1-73	Well No. 2-73
pH (electrometric)	5.9	6.3
Phenol Alkalinity (as Ca CO_3)	0	0
Total Alkalinity (as Ca CO_3)	24	29
Turbidity, units	0	1
Color, units	0	15
Odor	0	0
Chlorides (as Cl)	89	13
Iron	.05	.98 } .3 mg/L
Manganese	0.0	.06 } .05 mg/L
Copper	0.0	.09
Total Hardness (as Ca CO_3)	66	72

both wells are located in our aquifer

NO. 1-73 ⇒ PE-1 Golden Bk.
" 2-73 ⇒ PE-2 Beaver Bk.

PELHAM

PE-2

Pelham 1974

Keyes Assoc.

Copy of Report on Chemical
Analysis of Water

Sources: Test Well No. 1-73 (Golden Brook)
Test Well No. 2-73 (Beaver Brook)

(Data in parts per million unless otherwise noted)

	Well No. 1-73	Well No. 2-73
pH (electrometric)	5.9	6.3
Phenol Alkalinity (as Ca CO_3)	0	0
Total Alkalinity (as Ca CO_3)	24	29
Turbidity, units	0	1
Color, units	0	15
Odor	0	0
Chlorides (as Cl)	89	13
Iron	.05	.98 / .06 .3 mg/l .05 mg/l
Manganese	0.0	.06
Copper	0.0	.09
Total Hardness (as Ca CO_3)	66	72

both wells are located on the property

NO. 1-73 ⇒ PE-1 Golden Bk.
" 2-73 ⇒ PE-2 Beaver Bk.

PLAISTOW

PL-3

STANDARD WATER ANALYSIS REPORT

Orlando Laboratories, Inc.

P. O. Box 8025A • Orlando, Florida 32806 • 305/424-5606

ort to: Layne - New England Co.

Appearance: Clear

: July 19, 1973

Sampled by: Client

ort Number: 7459

Identification: Plaistow, NH TW 4C (26') E..i

METHODS

water was analyzed according to "Standard Methods for the Examination of Water and Wastewater," Latest Edition, APHA, AWWA and WPCF.

RESULTS

rmination	p.p.m.	Determination	p.p.m.
l Dissolved Solids, @ 105°C.	50	Total Hardness, as $CaCO_3$	24
nolphthalein Alkalinity, as $CaCO_3$	0	Calcium Hardness, as $CaCO_3$	15
l Alkalinity, as $CaCO_3$	30	Magnesium Hardness, as $CaCO_3$	9
bonate Alkalinity, as $CaCO_3$	0	Calcium, as Ca	6.0
rbonate Alkalinity, as $CaCO_3$	30	Magnesium, as Mg	2.2
bonates, as CO_3	0	Sodium, as Na	3.9
rbonates, as HCO_3	37	Iron, as Fe	1.6
droxides, as OH	0	Manganese, as Mn	0.1
bon Dioxide, as CO_2	16	Copper, as Cu	0.3
oride, as Cl	0	Silica, as SiO_2	14
fate, as SO_4	7	Color, Standard Platinum Cobalt Scale	7
oride, as F	0.06	Odor Threshold	0
sphate, as PO_4	1.5	Turbidity, Jackson Units	25
(Laboratory)	6.6		
	9.0		
bility Index	11.4		
uration Index	-2.4		

Signed: Geo. Wedlick

Chemist

(To convert ppm to grains per gallon, divide ppm by 17.1 – p.p.m. = mg/l)

ROCHESTER

RO-2

RO-2 (Farmington Well)

QUALITY

Water samples were taken and analyses made by the State Laboratory daily during the test. These analyses show that the water quality was consistantly good during the tests, with the following basic analyses:

Turbidity	0	Copper, less than	0.1
Odor	0	Alkalinity	13
Color	0	Manganese, less than	0.05
pH	6.1	Fluoride, less than	0.1
Nitrate	1.0	Coliform, less than 1 per 100 ML	
Hardness	40		
Chloride	23		
Iron	Less than 0.1		

The water would appear to be satisfactory for use without treatment, although somewhat corrosive. Stabilization or pH correction might be desirable to reduce corrosion. Although chlorination does not appear necessary, backup chlorination would be desirable.

PERMANENT WELL DESIGN

Sieve analysis was made of the samples obtained during the 8" well construction and copy is attached. These indicate a moderately low uniformity coefficient which makes gravel packing desirable. The gravel pack should have a fifty percent retained size of .187". This would allow the use of a 150 slot stainless steel screen. Analysis of the entrance velocity indicates that at 500 GPM, ten feet of sixteen inch diameter screen would be adequate to avoid excessive loss. A twenty foot deep concrete sanitary seal around the excavation is recommended and obtained by using a thirty-six inch excavation to that depth. Following this, the well should be excavated to a minimum twenty-four inch diameter, into which the sixteen inch screen and gravel pack is placed. The attached specification and drawing outline this proposed construction.

RAYMOND

RA-1

RA-1

INSTRUCTIONS

1. Fill out the mailing label below with the address to which you wish the report to be sent. If sender's name and address are different from the desired mailing address, please indicate in the proper space below.
2. Fill out the information card on the reverse side of this folder. *DO NOT UNSTAPLE.* The forms inside are for laboratory use only.
3. Please answer all questions to the best of your knowledge. The information requested is necessary for our interpretation of the results of the analysis. This portion of the card will be returned to you. Please write below any remarks you will need to enable you to identify the sample when the report is returned.

IF MAILING LABEL BELOW IS NOT LEGIBLE, YOUR REPORT MAY NOT BE DELIVERABLE BY THE POST OFFICE DEPARTMENT.

PLEASE PRINT

If different from mailing address:
Sender's Name A.L. MAKER CO.
Street or Box ~~xxxx~~ CONCORD ST
City NORTH READING State MASS. Zip

Pond Water Sample

MAIL TO:

NAME WITMAN AND HOWARD INC.

STREET 45 WILLIAM ST

CITY WELLESLEY STATE MASS ZIP 02181

Laboratory No. 50037 Spring Date Rec'd. 8/1/77

Turbidity	Tot. Dis. Solids	Odor	Color ✓	Radiological	Spec. Conduct.	pH
			50			
Nitrates/Nitrites	**Sodium ✓**	**Chloride ✓**	**Hardness ✓**	**Iron ✓**	**Copper ✓**	**Manganese ✓**
	7.3	17.5	20x20 40	0.61	<.1	<.05
Phen. Alkal.	**Total Alkal.**	**Lead**	**Fluoride**	**Phosphate**	**M.B.A.S.**	**Zinc**
	1.5x10 15					
Arsenic	**Barium**	**Cadmium**	**Chromium**	**Mercury**	**Selenium**	**Silver**

< = Less Than

Classification None

Remarks

Coliform Not Run per 100 ml.
TOO old.

Date completed AUG 10 1977

State of New Hampshire

N. H. Water Supply & Pollution Control Commission
State Laboratory Bldg.
Hazen Drive
Concord, N. H. 03301

Donald F. Bent, Ph.D., Director

Richard J Walsh, Jr.

RYE

RY-1

Water Quality

In general, the analyses performed on the several samples taken during and after the pumping test indicate a water of good quality suitable for use as a public water supply which was obtainable at the test site.

Samples of water pumped from the 8-inch well and tested by both laboratories indicate a composite water approximately as follows:

pH	6.5	to	6.9
Color	<1	to	10
Hardness	112	to	108
Chlorides	43	to	36
Nitrates	1.65	to	1.29
Iron	.02	to	<.1
Mn	.01	to	.05

One of the prime concerns relating to this test was the potential effect of leachate from the solid waste disposal area on the quality of water pumped from a permanent well at the site of the 8-inch test well. Water level data in the test wells indicates that the direction of ground water flow is from northwest to southeast. Test Well No. 12 was located less than 50 feet south of the solid waste which has been placed and covered. Water samples from this well were expected to be indicative of ground water quality containing leachate. The amounts of alkalinity, hardness, total dissolved solids, nitrate, iron, and manganese found in water from this well were higher than the amount of these minerals found in other samples; but with the exception of manganese the mineral content is well below the limits recommended by the U. S. Public

SOMERSWORTH

SO-1

APPENDIX K3

The State of New Hampshire
Water Supply and Pollution Control Commission
61 South Spring Street
Concord
03301

RICHARD S. KINNISBURGH
CHIEF OF LABORATORIES

SANITARY WATER ANALYSIS
PARTS PER MILLION

Water Works
Main Street
Somersworth, N.H.

July 26, 1968

Serial number		99228	10072	99519	99520
Supply of or samples from: Public supply		3-A Well 5-A	WELL 5A	Midway Park	Old Dover Rd.
Date collected		7-17-68	7/26/68	same	same
*Turbidity		0	5		
*Sediment		2			
*Odor		3			
Color			0		
Free ammonia nitrogen					
Alb. ammonia nitrogen					
pH		6.3	6.4		
Nitrate ~~Nitrogen~~			2.70		
Nitrite nitrogen					
Chloride			13.5		
Hardness		66	42		
Iron		less than 0.1	less than 0.1		
Copper		less than 0.1	less than 0.1		
Lead					
Phenolphthalein Alkalinity					
Total Alkalinity					
Manganese			0.43		
Fluoride					
Polyphosphate					
Synthetic Detergent (LAS)					
Coliform organisms in	0.001 c.c.				
	0.01 c.c.				
	0.1 c.c.			neg 1	neg 1
	1 c.c.			neg 1	neg 1
	10 c.c.			neg 5	neg 5
Coliform M.P.N. per 100 c.c.				less than 2	less than 2

Satisfactory at time of collection.

Richard S. Kinnisburgh

CHIEF OF LABORATORIES

*1. very faint 2. faint 3. distinct 4. decidedly objectionable 5. very strong Turbidity and sediment ... considerable ... hours

WILLIAM A. HEALY
Director of Sanitary Engineering

The State of New Hampshire
State Department of Health and Welfare
Concord

RECEIVED
SEP 17 1965
CAMP DIX/MCGUIRE

SANITARY WATER ANALYSIS
PARTS PER MILLION

FROM

Sept. 16, 1965

Serial number	55687	55688	55995	56110
Supply of or samples from: DOVER WATER WORKS Dover, N. H.	Smith Test Well #1	Smith Test Well #5	Hoppers Test Well #9	Hoppers Test Well #10
Date collected	5/24/65	5/24/65	6/2/65	6/4/65
*Turbidity	0	0	0	1
*Sediment	1	1	3	0
*Odor	0	1 Musty	0	0
Color	0	0	0	0
Free ammonia nitrogen	0.000	0.022	0.004	0.000
Alb. ammonia "	0.072	0.049	0.029	0.017
pH	5.8	6.4	6.7	
Nitrate nitrogen	less than .05	less than .05	less than .05	less than .05
Nitrite "	trace	-	trace	trace
Chlorine as chloride	22.5	41.5	2.5	2.5
Hardness	96	80	12	16
Iron	less than 0.1	less than 0.1	0.14	lessthan 0.1
Copper				
Lead				
Phenol Alkalinity	0.0	0.0	0.0	0.0
Total "	20.0	19.0	21.0	18.0
Manganese	1.30; 1.34	0.54; 0.58	less than .05	less than .05
Fluoride				
Metaphosphate				
Coliform organisms in 0.01 c.c.				
Coliform organisms in 0.1 c.c.	neg 1	neg 1	neg 1	neg 1
Coliform organisms in 1 c.c.	neg 1	neg 1	neg 1	neg 1
Coliform organisms in 10 c.c.	neg 5	neg 5	neg 4, pos 1	neg 5
M.P.N. B. coli per 100 c.c.	less than 2.0	less than 2.0	2.2	less than 2.0

W A Healy
Director of Sanitary Engineering

*Odor: 1. very faint; 2. faint; 3. distinct; 4. decided; 5. very strong. Turbidity and sediment

Change Def'd H+U to WPC
640 - A4 - Reference Room

CITY OF DOVER, NEW HAMPSHIRE

REPORT ON IMPROVEMENTS TO WATER SUPPLY AND DISTRIBUTION SYSTEM

NOVEMBER, 1965



Camp, Dresser & McKee
Consulting Engineers
Boston, Massachusetts

Recd W.P.C.
JAN 11 1966

now ranges from 1 to 2 ppm. There also has been an increase in the manganese content of this water. As a result this water is presently conducted to the Lowell Avenue filtration plant where the pH is raised from about 5.4 to 7.1. The water is then filtered through sand which has been precoated with potassium permanganate in completely enclosed steel pressure filters. The Lowell Avenue plant has a nominal capacity of 1.0 mgd. The filtered water is made less aggressive by the addition of soda ash to raise the pH to about 9.0, aerated, chlorinated, and pumped into the system.

It became necessary to call in the R. E. Chapman Company this past spring to surge and unclog the screen of the Smith Well. It was learned that a hole exists in the well screen which greatly endangers the well. Should a large stone or rock be drawn in, surely the pump bowls would suffer very costly damage. Because of the precarious condition of the Smith Well, it presently is used sparingly to "make-up" the balance of the daily demand not provided by the other sources. Mr. Sullivan of the R. E. Chapman Company estimated that it would be less costly to install a new well than it would be to attempt to repair the existing Smith Well. Since failure of the Smith Well, in the season of high demand, would place a very heavy burden on the City's other sources of supply, the City directed the R. E. Chapman Company to install some test wells in the Smith Well area to ascertain if a suitable location for another well existed. A total of six holes were drilled in the area in May of this year and Hole No. 5 located about 200 ft east of the Smith Well encountered a 12-ft layer of medium coarse sand underlain by at least 62 ft of coarse sand and gravel (refusal was not encountered). The static water level was 22 ft 4-in, and a 6-hr pumping test on the 2-1/2-in well indicated only a 3-1/2-in drawdown for a quantity of 42 gpm and a very rapid recovery upon completion of the test. Also of note is the fact that the Smith Well was in operation during this pumping test. Samples taken and analyzed by the State Department of Health and Welfare indicated the quality of the water pumped to be similar to that of the existing Smith Well, while the iron content was less than the 1 to 2 ppm characteristic of the existing Smith Well. A copy of the analyses has been appended. Although the iron content for both the No. 1 and No. 5 Wells was less than 0.1 ppm, it is practically certain that a well developed at this location would in time increase in iron content to about that of the existing Smith Well. In fact, all its quality aspects would undoubtedly be similar to those of the Smith Well. We have discussed with the Chapman Company the results of the test well work done this past spring, and it is their contention that construction of a new well in the Smith Well area shallower than the existing Smith Well could possibly produce a water of much lower iron content, thus eliminating the need for treatment at the Lowell Avenue plant. Whether or not this would be true is difficult to predict at this time, but the Lowell Avenue plant would be available if problems were absent at the start and later developed.

Summary

In summary, a review of the estimated yield of the existing sources of supply for Dover reveals that the present maximum daily demand of 3.5 mgd has

16-in main on Knox Marsh Road this restriction has been removed. The improved hydraulic capacity of the system afforded by this connection, however, could conceivably lead to an increase in the already excessive iron content as the rate of withdrawal of water from this well is increased. The water from the Barbadoes Well has an iron content of 0.5 ppm (parts per million), while 0.3 ppm is the limit recommended by the United States Public Health Drinking Water Standards. The water is presently treated with soda ash and pumped into the system.

R. B. Ireland Well

The R. B. Ireland Well was placed into service in the fall of 1960, and it is located adjacent to the south bank of the Bellamy River near Pudding Hill. The present pump will discharge 650 gpm with a system pressure of 85 psi and the Barbadoes Well operating, while the discharge from the Ireland Well will increase to 900 gpm when the Barbadoes Well is not in operation. The Ireland Well has been reported to have a safe yield of about 700 gpm, but indications during the present drought are that the safe yield is somewhere in the vicinity of 500 to 600 gpm inasmuch as that after operation of the Ireland Well at rates of 650 to 700 gpm for a few days, the drawdown increases at such a rate that it becomes necessary to reduce the pumpage rate to between 450 and 500 gpm for a few days to permit the aquifer to recharge. Discussion of the probable safe yield of the entire Pudding Hill aquifer will be included later in this report. The quality of the water obtained from the Ireland Well is the best of the City's present sources. The hardness is only about 20 ppm,and the iron content is less than 0.1 ppm. The pH ranges from 6.7 to 6.9 and soda ash is introduced at the source before the water is pumped into the distribution system.

Willand Pond Well

The Willand Pond Well was placed into service in 1954 and money was expended in 1960 to rehabilitate this well. The well is located just north of the western extremity of Willand Pond,and it yields an average of 350 gpm. It can be operated at a rate of 450 gpm,and during the months of July and August of 1965, it produced an average flow of 408 gpm. As stated earlier, the high iron content (1 to 2 ppm) of this well causes water quality problems in the Willand Pond area, and it is presently used to increase pressures in a rapidly expanding area served by a deficient transmission main. It is certainly necessary that improvements be made in the near future in order to eliminate the need for introducing water into the distribution system directly from this source without removal of the iron.

Smith Well

The Smith Well produces a water high in both iron and manganese. The Smith Well was completed in 1940, and at that time had an iron content of only 0.2 ppm. However, by 1947, the iron content had increased to 1.2 ppm, and it

APPENDIX E

BORING LOGS AND SEISMIC DATA

BARRINGTON

BA-1

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

UNITED STATES DEPARTMENT
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By
EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY

	Thickness (Feet)	Depth (Feet)
BARRINGTON 6. W18-1. Alt. 200 ft. Lat. 43°12'42". Long. 70°59'50". Geologist's log.		
Outwash and shore deposits:		
Fond fill	3	3
Sand, medium to very coarse, micaceous, gravel, and pebbles, rounded to subrounded, rusty brown to brown, with some yellowish brown streaks	12	15
Sand, medium to coarse, micaceous, rusty brown to yellow brown	5	20
Sand, fine to coarse, uniform, micaceous, brown to buff colored	10	30
Sand, fine to medium, micaceous, buff colored to light brown	12	42
Marine deposits:		
Silt and clay, greenish-gray to gray; a few medium to coarse sand layers about 1 to 1½ inches thick	7	49
BARRINGTON 7. W18-6. Alt. 175 ft. Lat. 43°11'05". Long. 71°00'07".		
Unconsolidated deposits, undifferentiated	22	22
Bedrock:		
Berwick formation	64	86
DOVER 3. W18-5. Alt. 146.83 ft. Lat. 43°11'17". Long. 70°55'37".		
Ice-contact deposits:		
Gravel	45.8	45.8
DOVER 4. W18-7. Alt. 15 ft. Lat. 43°07'42". Long. 70°50'20".		
Marine deposits:		
Sand, fine	10	10
Clay	42	52
Sand, fine	10	62
DOVER 5. W18-5. Alt. 142.38 ft. Lat. 43°11'18". Long. 70°55'42".		
Ice-contact deposits:		
Sand, medium to coarse	45	45
Sand, very coarse, and gravel, fine	15	60
Gravel	15	75
Sand, very fine	27	102
Bedrock		102
DOVER 6. W18-3. Alt. 180 ft. Lat. 43°13'05". Long. 70°53'25".		
Ice-contact deposits:		
Soil and disturbed material	5	5
Sand, fine	25	30
Sand, fine to coarse	20	50
Sand, coarse, and gravel	35	85
Till:		
Sand and clay	5	90
DOVER 8. W18-6. Alt. 97.40 ft. Lat. 43°10'26". Long. 70°54'07".		
Outwash and shore deposits:		
Loam, sandy	6	6
Marine deposits:		
Clay, brown	19	25
Clay, gray	8	33
Clay, sandy, gravelly	12	45
Ice-contact deposits:		
Gravel, sandy	10	55
Sand, fine	8.5	63.5
Refusal		63.5
DOVER 12. W18-6. Alt. 106.02 ft. Lat. 43°10'20". Long. 70°54'32".		
Marine deposits:		
Loam and clay	7	7
Clay with a little sand, coarse	23	30
Ice-contact deposits:		
Sand, coarse	2	32
Refusal		32
DOVER 13. W18-6. Alt. 95 ft. Lat. 43°10'23". Long. 70°54'35".		
Marine deposits:		
Peat	5	5
Clay	21	26
Ice-contact deposits:		
Gravel, sandy	4	30
Refusal		30
DOVER 14. W18-6. Alt. 105.27 ft. Lat. 43°10'25". Long. 70°54'02".		
Outwash and shore deposits:		
Topsoil	3	3
Sand	7	10
Marine deposits:		
Clay, sandy	15	25
Ice-contact deposits:		
Gravel, rust-colored	10	35
Sand and gravel	20	55
Sand, fine and coarse (pumps freely)	48	103
Refusal		103
DOVER 15. W18-6. Alt. 100 ft. Lat. 43°10'26". Long. 70°53'59".		
Outwash and shore deposits:		
Topsoil	3	3
Sand, fine	7	10
Marine deposits:		
Clay, sandy	15	25
Ice-contact deposits:		
Sand and gravel	55	80
Refusal		80
DOVER 16. W18-7. Alt. 13 ft. Lat. 43°07'52". Long. 70°50'21".		
Ice-contact deposits:		
Sand, fine	5	5
Gravel, coarse	25	30
Bedrock		30
DOVER 25. W18-3. Alt. 203 ft. Lat. 43°13'46". Long. 70°53'42".		
Ice-contact deposits:		
Sand, coarse, brown	5	5
Sand, fine, brown	5	10
Sand, fine, gray	5	15
Sand, fine, brown	10	25
Gravel, coarse	3	28
Sand, fine, brown	2	30
Gravel, coarse, brown	8	38
Sand, fine, gray	2	40
Sand, coarse, gray	5	45
Sand, coarse, brown	5	50
Gravel, coarse, gray	10	60
Sand, dark brown	5	65
Sand, hard-packed	5	70
Gravel, coarse	5	75
Sand, brown	1	76
Gravel, coarse, brown	2	78
Sand, coarse, gray	2	80
Till:		
Clay and sand, or hardpan	27	107
Bedrock		107
DOVER 30. W18-4. Alt. 68 ft. Lat. 43°12'08". Long. 70°52'29".		
Unconsolidated deposits, undifferentiated	140	140
Bedrock	260	400
DOVER 32. W18-2. Alt. 125 ft. Lat. 43°12'34". Long. 70°56'08".		
Marine deposits:		
Topsoil	1	1
Clay and sand, fine	33	34
Till:		
Sand, fine; some gravel and clay	3	37
Refusal		37
DOVER 33. W18-5. Alt. 130 ft. Lat. 43°12'28". Long. 70°56'09".		
Marine deposits:		
Topsoil	1	1
Sand, fine, and some gravel	4	5
Clay and sand, fine	39	44
Till:		
Clay, sand, and some gravel	47	91
Refusal		91
DOVER 34. W18-5. Alt. 139 ft. Lat. 43°11'46". Long. 70°56'02".		
Marine deposits:		
Topsoil	2.0	2.0
Clay, hard	7.0	9.0
Clay, soft	16.0	25.0
Till:		
Clay and sand	12.0	37.0
Clay and sand; some gravel	8.7	45.7
Refusal		45.7
DOVER 35. W18-5. Alt. 137 ft. Lat. 43°11'54". Long. 70°56'12".		
Marine deposits:		
Loam	1.0	1.0
Clay, hard	6.0	7.0
Clay, soft	51.0	58.0
Clay and sand	16.0	74.0
Silt and clay	11.0	85.0
Till:		
Sand, fine, and gravel, fine, sharp	7.8	92.8
Refusal		92.8
DOVER 36. W18-5. Alt. 140 ft. Lat. 43°11'56". Long. 70°56'22".		
Ice-contact deposits:		
Sand and gravel, brown	25	25
Sand and gravel, gray	55	80
Sand, fine, gray	5	85
Sand, fine; some clay	35	120
Sand, gray	25	145
Sand, coarse, and gravel	21	166
Bedrock		166
DOVER 37. W18-5. Alt. 137 ft. Lat. 43°11'58". Long. 70°56'23".		
Marine deposits:		
Loam	1	1
Clay, hard	2	3
Clay, soft	25	28
Ice-contact deposits:		
Sand, fine; some clay	5	33
Sand and gravel	22	55
DOVER 38. W18-5. Alt. 137 ft. Lat. 43°12'00". Long. 70°56'24".		
Marine deposits:		
Loam	1.0	1.0
Clay	27.0	28.0
Ice-contact deposits:		
Sand, medium	4.0	32.0
Sand, medium; some gravel	5.5	37.5
Sand, gravel; some clay	6.5	44.0
Sand and gravel	11.0	55.0
Sand, fine; gravel, scattered; some clay	13	68
Sand, fine; a little gravel	10	78
Sand, fine; some gravel	3	81
Bedrock		81
DOVER 39. W18-5. Alt. 135 ft. Lat. 43°12'00". Long. 70°56'29".		
Ice-contact deposits:		
Topsoil	1.0	1.0
Sand, coarse, and gravel, fine	20.0	21.0
Sand	9.5	30.5
Sand, coarse; some gravel, fine	10.5	41.0
Till:		
Clay and sand	31.0	72.0
Refusal		72.0
DOVER 40. W18-5. Alt. 138 ft. Lat. 43°11'57". Long. 70°56'24".		
Ice-contact deposits:		
Sand, coarse, and gravel	60	60
Sand, fine	30	90
Refusal		90
DOVER 41. W18-5. Alt. 140 ft. Lat. 43°11'57". Long. 70°56'29".		
Ice-contact deposits:		
Sand, gravel, and boulders	12	12
Sand, coarse, and gravel	30	42
Sand, fine, and gravel	36	78
Sand, compacted	6	84
Sand, fine, and gravel	42	126

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #25A

Address

Well located at OFF RT 125 HUBBARD'S GRAVEL PIT in BARRINGTON N.H. ~~County~~ State of N. H.

Date Drilling started 6-9-77 Date Test Hole Completed 6-9-77

Total depth to bottom of Well 38' Diameter Test Hole 2½"

Water stands when not pumping 6' feet 5" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	28'	fine brown sand brown and gray clay.
28'	36'	coarse brown sand with brown and gray clay
	38'	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

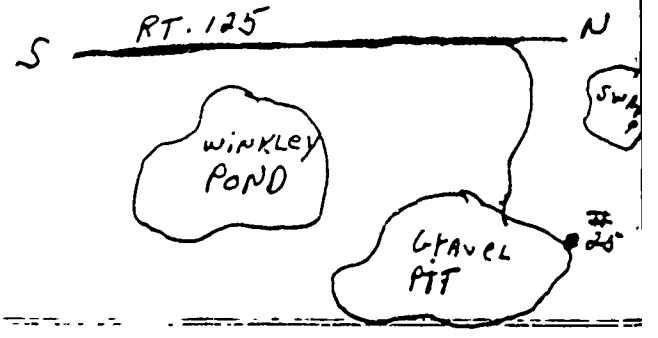
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John Graglia

Helper T. Delezar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #26 AND 26A 2FT OB.

Address

Well located at OFF 125 HUBBARD'S GRAVEL PIT in BARRINGTON ~~County~~, State of N.H.

Date Drilling started 6-10-77 Date Test Hole Completed 6-13-77

Total depth to bottom of Well 72' Diameter Test Hole 2½"

Water stands when not pumping 15' feet 1½" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	28'	coarse brown sand and gravel
28'	42'	fine to coarse brown sand and gravel
42'	56'	fine reddish brown sand.
56'	72'	grayish brown fine sand and gray clay.
	72'	REFUSAL

pulled well back to 56' set 30 slot screen exposed 6ft. well tight pulled screen reset at 42' exposed screen 6ft

set 10 slot screen at 42 in observation exposed 6ft.

Did Well Clear Up? YES

How Long? 5 MIN

Time Pumped? 2hrs + ½hr ob.

Drawdown 2' Ft. 2" In.

Capacity 4gpm VAC 23"

Time Required for Recovery? 5 MIN WITHIN 1"

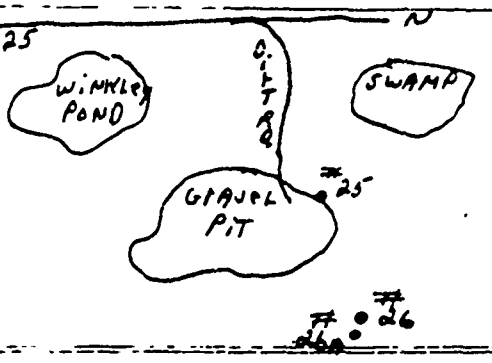
Was Well Pulled? NO

Observation YES What Depth? 42'

40gpm VAC 24" STATIC 15'1"

Was Observation Well Pulled? NO'

Map of Location



Remarks and opinion of Test

Driller John Graglia

Helpers T. Delegat

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. WATER DEPT. Test No. #27 AND 27AA0B 2FT

Address

Well located at OFF WINKLEY POND RD. IN GRAVEL PIT. County, State of N. H.

Date Drilling started 6-14-77 Date Test Hole Completed 6-15-77

Total depth to bottom of Well 79' Diameter Test Hole 2½"

Water stands when not pumping 3' feet 1" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	COARSE BROWN SAND
		AND GRAVEL.
21'	28'	GRAYISH FINE SAND AND
		GRAVEL
28'	35'	GRAYISH FINE TO COARSE SAND
		AND SOME GRAVEL.
35'	49'	COARSE GRAY SAND
		AND GRAVEL.
49'	56'	FINE TO COARSE GRAY SAND
		SOME GRAVEL
56'	72'	FINE GRAY SAND
72'	78'	HARD PAN
	79'	REFUSAL

Set 40 slot screen at 56' exposed 6' #27
Set 40 slot screen at 56' exposed 6' OB WELL

Did Well Clear Up? YES

How Long? ½hr

Time Pumped? 4Hrs + 1hr OBSERVATION

Drawdown 1 Ft. 8" In.

Capacity 60 GPM VAC 14"

Time Required for Recovery?

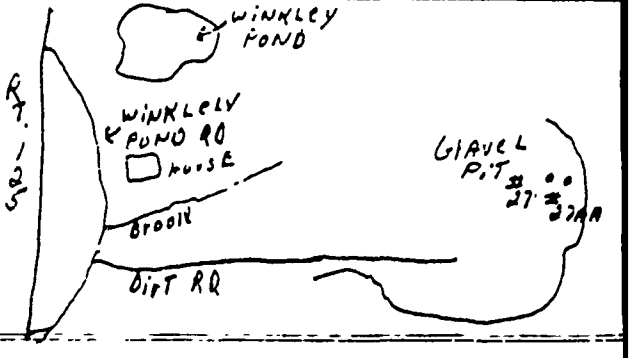
Was Well Pulled? NO

Observation YES What Depth? 56'

GPM 60 VAC 14"

Was Observation Well Pulled? NO

Map of Location



Remarks and opinion of Test

Driller John Graglia

Helper Ted Pelczar

U Study
NED - Fass
Fossrdg

Byrne III

STEVEN L. DEAN
Consultant Geologist
Box 487
Parishville, N.Y.
13672

May 15, 1977

Mr. Joseph Murphy
Whitman & Howard, Inc.
45 Williams St.
Wellesley, Massachusetts
02181

Dear Mr. Murphy:

Seismic investigations for the purpose of locating new municipal water sites for the City of Portsmouth, New Hampshire were completed on April 25, 1977.

This report is a complete presentation of my findings. I would be pleased to discuss this report with you at your convenience.

Sincerely yours,

Steven L. Dean

Steven L. Dean

SEISMIC SURVEY
MUNICIPAL WATER SUPPLY EXPLORATION
PORTSMOUTH, NEW HAMPSHIRE

This seismic investigation consists of twenty-four separate traverses each of which was 300 feet in length. The locations of these traverses were dispersed across several towns in southeastern New Hampshire and will therefore be examined individually on a site by site basis.

A total of 7,200 feet of profiling was interpreted with a total of 5 days of field work.

RESULTS

Site number 1 is located approximately 800 feet northwest of the Data General Building in the industrial park on Lafayette Road within the City limits of Portsmouth. Here the seismic profile indicated approximately 15 to 16 feet of unconsolidated, dry material overlying at least 80 feet of denser material. The velocity of this second layer (7,600 feet per second) is usually indicative of either a relatively impermeable silt-sand-clay mixture or a glacial till. The location of this particular site would seem to favor the silt-sand-clay mixture. The velocities found at this location are well above the range in which most municipal sized water supplies are found and therefore the material is most likely too impermeable to warrent further test well investigation.

Site number 2 is located about 2,000 feet northeast of site number 1. Here a thin layer of dry overburden was again found to extend to a depth of 10 to 15 feet. However, beneath this was found a thick layer of material which extends to what appears to be bedrock at about 90 feet. This second layer has a velocity of 5,500 feet per second which is slightly higher than the ideal range in which most large water supplies are found. This would seem to indicate that the sands and gravels of this second layer might be too

indicative of loose, permeable sands and gravels which have sufficient saturation to warrent further testing by wells. The permeable material intersects bedrock at about 29 feet at point A and 41 feet at point B. Therefore it would seem wise to drive any test wells in the vicinity of point B or possibly slightly north or east of this point.

Site number 16 is located on the east access road to the abandoned race track beside State Route #152 in the Town of Newmarket. Here, approximately 19 feet of loose, dry sands overlie a second layer with a velocity of 9500 feet per second. This velocity is usually indicative of a very consolidated glacial till or a fractured or weathered bedrock. In either case further investigation by test wells would not be warrented.

Site number 17 is located approximately 1,200 feet east of the intersection of Depot Road and State Route #101 in the Town of Stratham. Here, about 16 to 19 feet of loose, dry sands and gravels directly overlie bedrock. No further investigation is recommended for this site.

Site number 18 is located in a gravel pit about 900 feet west of the intersection of Snell Road and Sheep Road in the Town of Lee. At this site approximately 10 to 15 feet of loose, unsaturated sands and gravels directly overlie bedrock. Again, no further investigation is warrented.

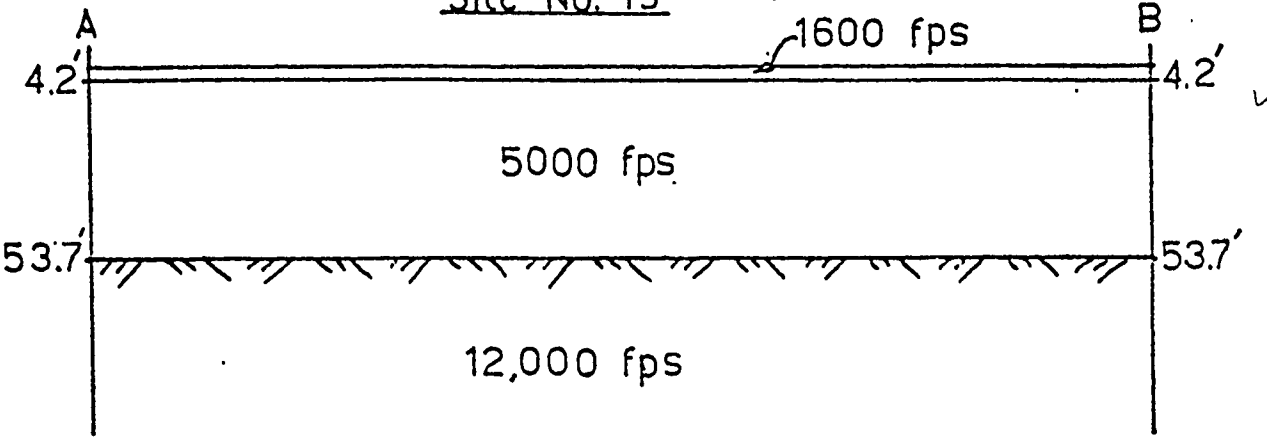
Site number 19 is located in a gravel pit about 1,200 feet south of Winkley Pond in the Town of Barrington. At this location approximately 4 feet of dry sands and gravels overlie a second layer which extends to bedrock at a depth of about 54 feet. This second layer has a seismic velocity of 5,000 feet per second which usually indicates the presence of saturated sands and gravels which are quite permeable. This site should be investigated further by test wells.

slightly denser with a velocity of 7,100 feet per second. Both traverses 21 and 22 would point to an unsaturated condition until the third layer is reached. However the fact that the water level in the gravel pit only 200 feet away from traverse 22 was only about 10 to 15 feet below the elevation of the traverse indicates either a very peculiar geologic formation or some sort of interference with the seismic apparatus at these two sites. A possible source for such an interference could be the fact that the City of Portsmouth's Greenland well was pumping during the duration of these two seismic traverses and the low frequency vibrations imparted to the substratum by the large pump may have affected the highly sensitive seismic geophones.

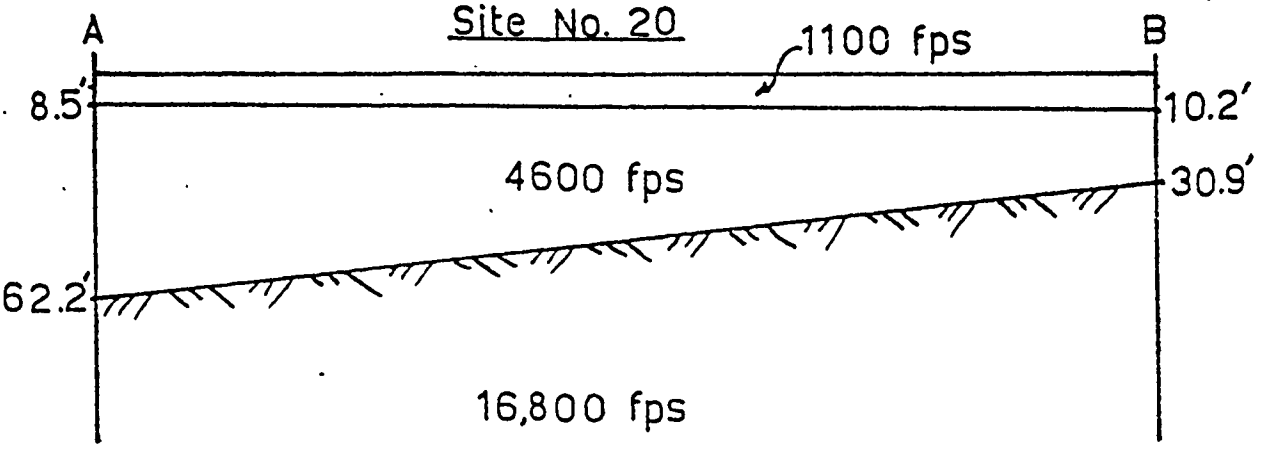
Site number 23 is located in a gravel pit approximately 800 feet east-northeast of the intersection of Evans Road and Pudding Hill Road in the Town of Madbury. Here, about 25 to 33 feet of loose, dry sands and gravels directly overlies a second layer with a velocity of 9,150 feet per second. This second layer is either a very hard glacial till or bedrock. This site does not appear favorable for further testing.

Site number 24 is located in a gravel pit approximately 1,000 feet north of Winkley Pond in the Town of Barrington. Here, between 3 and 11 feet of loose, dry sands and gravels overlie a second layer with a velocity of 4,400 feet per second. This second layer is about 21 to 23 feet thick at this location and its velocity indicates a permeable sand and gravel although possibly lacking in total saturation. A test well slightly to the southeast of point B might show a greater thickness of saturated sands and gravels since there was such a trend from point A to point B.

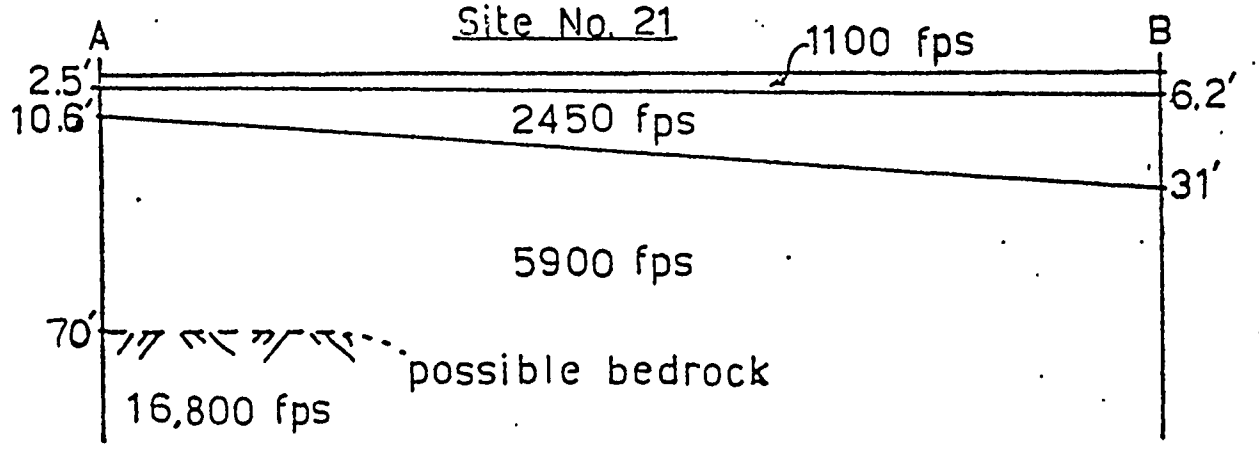
Site No. 19

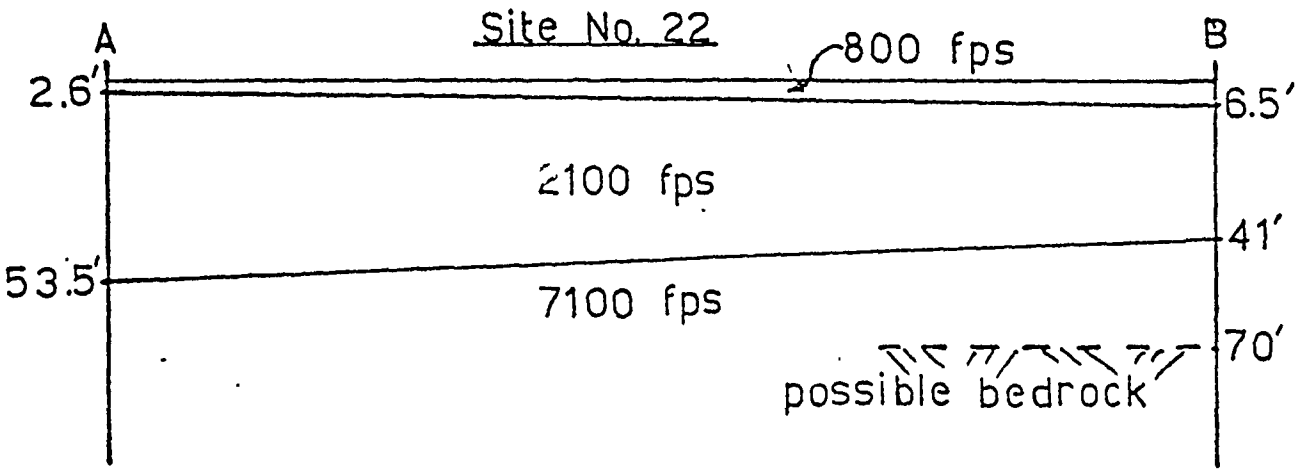


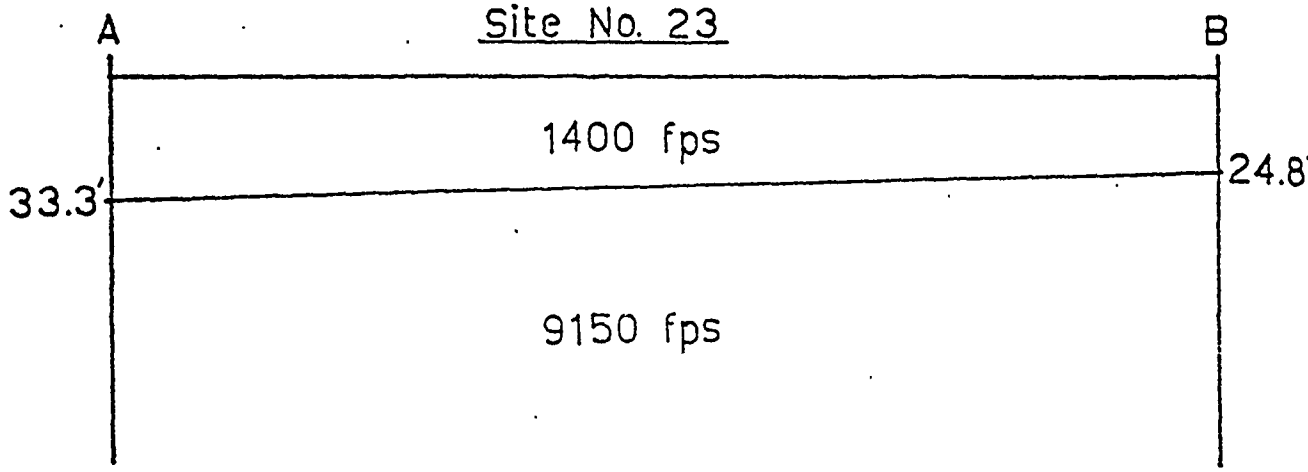
Site No. 20

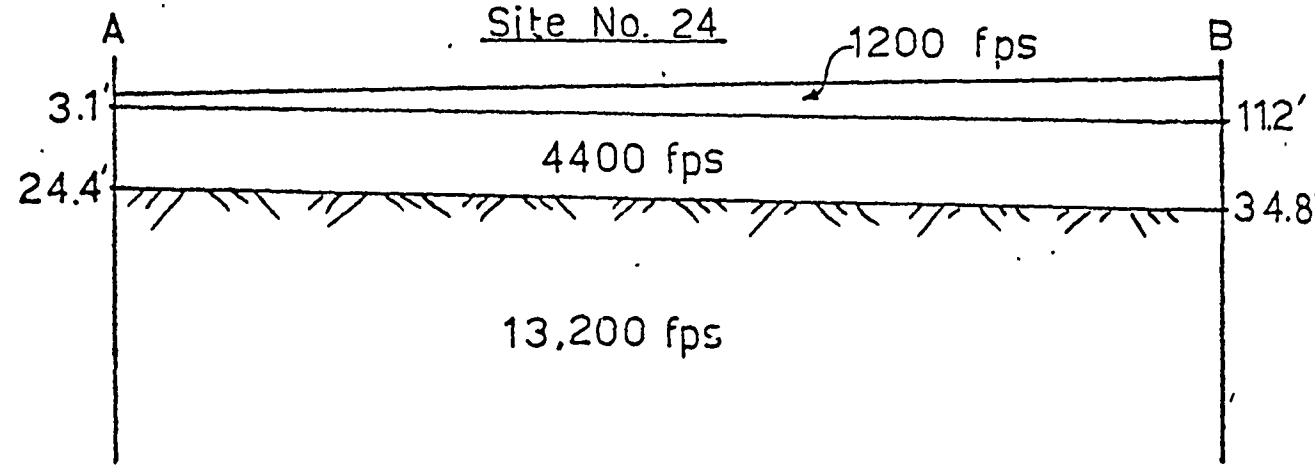


Site No. 21




Site No. 22
A
B
800 fps
2.6'
6.5'
2100 fps
41'
53.5'
7100 fps
70'
possible bedrock


Site No. 23
A
B
1400 fps
24.8'
33.3'
9150 fps


Site No. 24
A
B
1200 fps
3.1'
11.2'
4400 fps
24.4'
34.8'
13,200 fps

BARRINGTON

BA-2

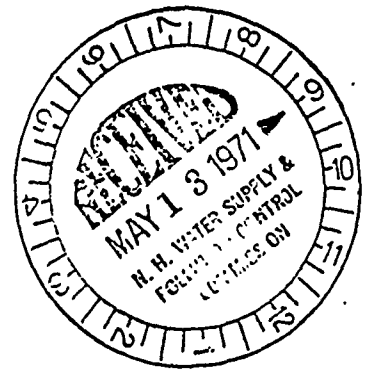
REPORT ON GROUND WATER

INVESTIGATION AT "THE HOPPERS"

FOR THE CITY OF DOVER, NEW HAMPSHIRE

March, 1971





Camp, Dresser & McKee
Consulting Engineers
Boston, Massachusetts

TABLE 1. LOGS OF 8-IN TEST WELLS - 1952 PROGRAM

Well No.	Depth (ft)	Description	Remarks
D-20	0-15	Hard-packed gravel	Static water level = 17 ft-2-in from top of pipe which is 2 ft above ground. Set 20 ft - 100-slot screen at 63 ft. Pumped and surged to clear. Pumped 3 1/2 hrs for sample. Pumped 225 gpm with 5 1/2 ft drawdown. Left in 46 ft-2-in of 8-in pipe. Location D-11. Pulled by V.P. Sullivan - October, 1952.
	15-50	Water-bearing sand	
	50-55	Water-bearing gravel	
	55-63	Water-bearing sand	
	63-64	Till	
	64	Ledge	
D-21	0-10	Gravel fill, peat	Static water level = 9 ft-8-in from top of pipe which is 3 ft above ground. Set 20 ft - 100-slot screen at 81 ft. Pumped 3 hrs for sample. Pumped 300 gpm with 8 ft drawdown. Left in 64 ft-7-in of 8-in pipe. Location D-12. Pulled by V.P. Sullivan - October, 1952.
	10-81	Water-bearing sand and gravel	
	81-91	Till	
	91	Ledge	

TABLE 2. EXPLORATORY WELL LOGS - 1970 PROGRAM (Cont.)

Well No.	Depth	Description	Remarks
		THE HOPPERS	
70-3	0-15 ft	Brown sand & medium gravel	S.W.L. = 52 ft 4-in
	15-29 ft	Coarse brown sand & gravel	Left in open end
	29-45 ft	Medium brown sand & gravel	
	45-60 ft	Fine brown sand & small gravel	
	60-70 ft	Medium brown sand & gravel	
	70-84 ft	Brown sand & sharp medium gravel	
	84-91 ft	Gray fine sand & small gravel	
	91-100 ft	Gray fine sand	
	100-110 ft	Gray silty sand	
	110-116 ft	Gray silty sand & sharp black gravel	
		Refusal at 116 ft	
70-4	0-15 ft	Brown fine sand	S.W.L. = 42 ft 2-in
	15-27 ft	Brown sand and small gravel	Left in open end
	27-39 ft	Brown sand, gravel & clay	
	39-58 ft	Reddish brown sand & gravel	
	58-70 ft	Reddish brown sand & coarse gravel	
	70-84 ft	Brown sand & gravel	
	84-91 ft	Coarse gray sand & gravel	
	91-101 ft	Gray sand & small gravel	
		Refusal at 101 ft	
70-5	0-20 ft	Brown fine sand & small gravel	S.W.L.= 47 ft 5-in
	20-30 ft	Brown sand & gravel	Left in open end
	30-40 ft	Brown medium sand & trace of clay	
	40-50 ft	Brown sand & clay	
	50-70 ft	Brown medium sand & firm clay	
	70-80 ft	Brown medium sand & traces of clay	
	80-88 ft	Brown medium sand	
	88-95 ft	Gray fine sand	
	95-104 ft	Gray silty sand	
	104-113 ft	Gray silty sand & clay	
		Refusal at 113 ft	

TABLE 2. EXPLORATORY WELL LOGS - 1970 PROGRAM (Cont.)

Well No.	Depth		Description	Remark
			THE HOPPERS	
70-6	0-12	ft	Fine brown sand	S.W.L. 44 ft 8-in
	12-20	ft	Soft brown clay	Left in open end
	20-43	ft	Soft brown & gray clay	
	43-50	ft	Brown sand & clay	
	50-60	ft	Brown medium sand & traces of clay	
	60-70	ft	Brown sand & small sharp gravel	
	70-80	ft	Brown medium sand & trace of clay	
	80-90	ft	Brown fine sand	
	90-93	ft	Brown sand, sharp gravel & trace of clay	
	93-100	ft	Gray sand	
	100-107	ft	Gray sand silt	
			Refusal at 107 ft	
70-7	0-20	ft	Brown sand gravel & clay	S.W.L.=14 ft 2-in
	20-30	ft	Brown sand & gravel	Set 10 ft of 60 slot screen at
	30-50	ft	Coarse red sand & gravel	75-83 ft
	50-70	ft	Coarse red & brown sand & gravel	Pumped fair
	70-75	ft	Medium brown sand & gravel	
	75-83	ft	Fine to medium sand & small gravel	
			Refusal at 83 ft	
70-8	0-20	ft	Brown sand & gravel	S.W.L.=42 ft 4-in
	20-30	ft	Brown sand & gravel	Left in open end
	30-40	ft	Fine sand & clay	at 70 ft
	40-65	ft	Silty brown sand & clay	
	65-80	ft	Medium brown sand	
	80-95	ft	Brown fine & gray sand mixed with clay	
	95-109	ft	Silty gray sand & clay	
			Refusal at 109 ft	

TABLE 2. EXPLORATORY WELL LOGS - 1970 Program (Cont.)

Well No.	Depth		Description	Remark
			THE HOPPERS	
70-9	0-3	ft	Soft brown sand	S.W.L. = 40 ft 2-in
	3-23	ft	Clay, gravel & boulders	Pumped with 1 1/4-in
	23-30	ft	Brown sharp sand & small gravel	cylinder pump
	30-36	ft	Fine brown sand & soft clay	
	36-56	ft	Brown fine sand & silt	
	56-60	ft	Brown sand & clay	
	60-70	ft	Brown sand & medium gravel	
	70-88	ft	Coarse sand & gravel	
			Refusal at 88 ft	
70-10	0-6	ft	Brown sand & gravel	S.W.L. = 47 ft 5-in
	6-20	ft	Brown sand, gravel & clay	Set 5 ft of 30 slot
	20-40	ft	Fine brown sand & clay	screen at 98-103 ft
	40-55	ft	Fine gray sand, small gravel mixed with clay	
	55-63	ft	Brown fine sand	
	63-70	ft	Brown coarse sand & small gravel	
	70-90	ft	Brown sand & gravel	
	90-105	ft	Medium brown sand & gravel	
	105-115	ft	Gray sand & small gravel	
	115-127	ft	Gray sand small gravel & trace of clay	
			Refusal at 127 ft	
70-11	0-5	ft	Brown sand	S.W.L. = 40 ft 9-in
	5-22	ft	Brown sand, gravel, boulders & clay	Left in open end
	22-38	ft	Brown sand & clay	
	38-49	ft	Fine brown sand & clay	
	49-57	ft	Fine brown sand	
	57-66	ft	Medium brown & gray sand	
	66-83	ft	Drove boulder ahead of pipe no plug. No return of wash water when washing out	
	83-94	ft	Brown sand & gravel	
	94-98	ft	Sharp brown & gray sand & sharp small gravel	
			Refusal at 98 ft	

TABLE 2. EXPLORATORY WELL LOGS - 1970 PROGRAM (Cont.)

Well No.	Depth		Description	Remark
			THE HOPPERS	
70-12	0-15	ft	Brown sand, gravel & boulders	S.W.L. = 59 ft 10-in
	15-30	ft	Brown sand small gravel & traces of clay	Left in open end
	30-45	ft	Fine brown sand & gravel	
	45-55	ft	Medium sand & gravel	
	55-70	ft	Fine brown sand & small sharp gravel	
	70-80	ft	Fine to medium brown sand	
	80-90	ft	Fine brown sand	
	90-100	ft	Fine brown sand & small sharp gravel	
	100-104	ft	Brown & gray fine sand & sharp black small gravel	
			Refusal at 104 ft	
70-13	0-5	ft	Brown sand & small gravel	S.W.L. = 57 ft 4-in
	5-12	ft	Soft gray clay	Left in open end
	12-25	ft	Soft gray sandy clay	
	25-50	ft	Soft gray clay	
	50-55	ft	Soft gray clay with sharp gravel	
	55-60	ft	Small sharp gravel & clay	
	60-75	ft	Fine brown sand	
	75-84	ft	Fine brown sand & trace of clay	
	84-94	ft	Gray sand, sharp gravel & clay	
			Refusal at 94 ft	
70-14	0-10	ft	Brown sand	S.W.L. = not determined
	10-30	ft	Soft gray clay	
	30-40	ft	Soft gray clay	
	40-50	ft	Firm blue clay	
	50-75	ft	Firm blue clay	
	75-85	ft	Silty gray clay	
	85-95	ft	Silty gray clay with some small sharp stones	
	95-111	ft	Gray silty sand & clay	
			Refusal at 111 ft	

TABLE 2. EXPLORATORY WELL LOGS - 1970 PROGRAM (Cont.)

Well No.	Depth		Description	Remark
			THE HOPPERS	
70-15	0-6	ft	Fine brown sand	S.W.L. = 19 ft 1-in
	6-19	ft	Gray sand, gravel & clay	Left in open end
	19-24	ft	Gray & brown sand	
	24-28	ft	Fine to medium brown sand	
	28-35	ft	Brown sand & gravel	
	35-43	ft	Brown coarse sand & gravel (Hit a boulder at 41 ft drove by it and hit solid at 43 bent casing on bottom length.)	
			Refusal at 43 ft	
70-15A	0-6	ft	Fine brown sand	S.W.L. = 19 ft
	6-20	ft	Gray sand, gravel & clay	Pulled out
	20-24	ft	Gray & brown sand	
	24-28	ft	Fine to medium brown sand	
	28-35	ft	Brown sand & gravel	
	35-41	ft	Brown coarse sand & gravel could not get below 41 ft	
			Refusal at 41 ft	
70-16	0-20	ft	Brown sand & gravel	S.W.L. = 53 ft
	20-30	ft	Fine brown sand	Left in open end
	30-40	ft	Coarse sand & gravel	
	40-48	ft	Hard pan	
	48-56	ft	Brown sand, gravel & clay	
	56-66	ft	Brown fine sand & gravel	
	66-73	ft	Brown sand & gravel	
			Refusal at 73 ft	

BRENTWOOD

BW-1

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

Retain

UNITED STATES DEPARTMEN

GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 4.—Logs of selected wells and test holes in southeastern New Hampshire

(See text for explanation)

ROCKINGHAM COUNTY

	Thickness (Feet)	Depth (Feet)
BRENTWOOD 1. V17-8. Lat. 43°00'44". Long. 71°03'06". Alt. 140 ft.		
Marine deposits:		
Topsoil	1.5	1.5
Clay	5.1	6.6
Sand, fine; some clay	13.4	20.0
Ice-contact deposits:		
Sand, fine, brown	20.5	40.5
BRENTWOOD 10. V16-3. Lat. 42°58'36". Long. 71°00'14". Alt. 147 ft.		
Ice-contact deposits:		
Gravel	24	24
Sand	42	66
Bedrock	18	84
BRENTWOOD 16. V16-3. Lat. 42°59'26". Long. 71°01'55". Alt. 100 ft. Geologist's log.		
Marine deposits:		
Soil, silty, brown	1	1
Silt, light olive-drab to gray; some clay	14	15
Clay and silt, bluish-gray	9	24
BRENTWOOD 17. V16-2. Lat. 42°58'48". Long. 71°04'13". Alt. 120 ft. Geologist's log. (Log starts in bottom of sand pit about 10 ft. below the original land surface.)		
Outwash and shore deposits:		
Sand, medium, uniform, brown	7.5	7.5
Sand, fine to medium, brown; a little sand, very fine	4.5	12.0
Marine deposits:		
Silt and clay, gray to bluish-gray; a few scattered pebbles	5.0	17.0
Ice-contact deposits:		
Sand; some gravel in layers	4.0	21.0
Till:		
Silt, sand, and gravel, angular, bluish-gray	1.0	22.0
Refusal		22.0
EAST KINGSTON 3. V16-6. Alt. 148 ft. Long. 71°01'26". Lat. 42°55'46".		
Till	50	50
Bedrock	36	86
EAST KINGSTON 4. V16-6. Alt. 160 ft. Long. 71°01'31". Lat. 42°55'48".		
Till	40	40
Bedrock	22	62
EAST KINGSTON 5. V16-9. Alt. 140 ft. Long. 71°00'55". Lat. 42°54'36".		
Till	16	16
Bedrock	87	103
EAST KINGSTON 7. V16-4. Alt. 192 ft. Long. 70°59'28". Lat. 42°55'26".		
Till	98	98
Bedrock	102	194
EAST KINGSTON 8. V16-6. Alt. 152 ft. Long. 71°00'58". Lat. 42°55'29".		
Till	100	100
Bedrock	22	122
EAST KINGSTON 9. V16-7. Alt. 150 ft. Long. 70°59'09". Lat. 42°54'57".		
Till	12	12
Bedrock	53	65
EPPING 2. V17-7. Lat. 43°01'47". Long. 71°05'07". Alt. 145 ft.		
Artificial fill:		
Topsoil and sand	7	7
Marine deposits:		
Clay	28	35
Sand	7	42
Clay	17	59
Ice-contact deposits:		
Sand, coarse, and fine gravel	5	64
EPPING 4. V17-5. Lat. 43°02'55". Long. 71°02'46". Alt. 150 ft. Geologist's log. (Log starts in bottom of gravel pit about 6 ft. below original land surface.)		
Ice-contact deposits:		
Sand, fine to medium, uniform; tan	25	25
Sand, fine, uniform, tan, some pebbles near bottom	19	44
Pebbles, refusal, no recovery		44
EPPING 5. V17-6. Lat. 43°04'15". Long. 71°00'59". Alt. 95 ft. Geologist's log. (Log starts in bottom of sand pit about 20 ft. below original land surface.)		
Outwash and shore deposits:		
Sand, medium to coarse, micaceous, brown to buff	7.5	7.5
Sand, medium to coarse, micaceous, rusty brown	2.5	10.0
Marine deposits:		
Silt and clay, greenish-gray to blue-gray; contains streaks of medium to coarse sand and fine sand	10.0	20.0
EXETER 2. V16-2. Lat. 42°53'25". Long. 70°56'40". Alt. 35 ft.		
Marine deposits:		
Sand and clay in layers	10	10
Clay, gray and blue	37	47
Sand, fine	1	48
Ice-contact deposits:		
Sand and gravel	8	56
EXETER 5. V17-7. Lat. 43°01'10". Long. 70°59'21". Alt. 170 ft.		
Till	100	100
Bedrock:		
Granodiorite	70	170
EXETER 8. V16-1. Lat. 42°58'41". Long. 70°57'39". Alt. 65 ft.		
Unconsolidated deposits, undifferentiated:		
Clay and sand	60	60
Bedrock	90	150
EXETER 9. V16-1. Lat. 42°59'07". Long. 70°57'57". Alt. 65 ft.		
Unconsolidated deposits, undifferentiated:		
Sand and clay	38	38
Bedrock	5	43
EXETER 10. V16-1. Lat. 42°57'50". Long. 70°59'29". Alt. 103 ft.		
Unconsolidated deposits, undifferentiated:		
Sand and clay	85	85
Bedrock	25	110
EXETER 11. V16-1. Lat. 42°57'41". Long. 70°59'59". Alt. 190 ft.		
Ice-contact deposits:		
Sand, fine, and gravel	90	90
Bedrock	50	140
EXETER 15. V16-2. Lat. 42°58'26". Long. 70°56'30". Alt. 30 ft.		
Marine deposits:		
Sand, gray, and sandy loam	5	5
Clay, hard, gray	13	18
Ice-contact deposits:		
Sand and gravel, subangular, gray	10	28
Sand, gravel, pebbles, and small cobbles, subangular, gray	6	34
Gravel, pebbles, and cobbles, subangular to angular, gray	4	38
Sand; some gravel and pebbles, subangular to angular, gray	10	48
Gravel; some sand, angular, gray	10	58
Till:		
Hardpan	4	62
Bedrock		62
EXETER 17. V16-2. Lat. 42°58'40". Long. 70°56'34". Alt. 30 ft.		
Marine deposits:		
Sand, medium, brown	14	14
Silt and clay	66	80
Till:		
Gravel and clay	6	86
Bedrock		86
EXETER 18. V16-2. Lat. 42°58'25". Long. 70°56'30". Alt. 30 ft.		
Marine deposits:		
Sand, fine	5	5
Clay	17	22
Ice-contact deposits:		
Sand, fine to medium	30	52
EXETER 19. V16-3. Alt. 105 ft. Long. 70°54'37". Lat. 42°58'41".		
Marine deposits:		
Clay, gray	8	8
Till:		
Sand, gravel, and clay, hardpacked, gray	6	14
Sand, gravel, sharp, and clay, hard, gray	9	23
Bedrock		23
EXETER 20. V16-3. Alt. 70 ft. Long. 70°54'28". Lat. 42°58'20".		
Marine deposits:		
Sand, fine	5	5
Clay, hard	5	10
Silt and clay	9	19
Ice-contact deposits:		
Gravel, medium to coarse	13	32
EXETER 21. V16-2. Lat. 42°53'22". Long. 70°55'04". Alt. 63 ft.		
Unconsolidated deposits, undifferentiated:		
Clay, hardpacked, brown	13	13
Sand and clay, brown; some gravel, heavy	3	16
Ice-contact deposits:		
Sand, brown, and gravel	6	22
Sand and gravel; some clay, gray	8	30
EXETER 22. V16-3. Lat. 42°53'28". Long. 70°54'28". Alt. 75 ft.		
Unconsolidated deposits, undifferentiated:		
Clay, brown	10	10
Sand and gravel, brown; a trace of clay, brown	8	18
Till:		
Hardpan and clay, brown	6	24
EXETER 23. V16-2. Alt. 43 ft. Long. 70°56'05". Lat. 42°58'55".		
Marine deposits:		
Sand, fine, brown	10	10
Clay, hard, brown; scattered gravel, sharp	7	17
Ice-contact deposits:		
Gravel, sharp, black	4	21
Sand and gravel, sharp, hardpacked, brown	4	25
Refusal		25
EXETER 24. V16-2. Lat. 42°58'17". Long. 70°55'58". Alt. 25 ft.		
Marine deposits:		
Clay, blue	55	55
Ice-contact deposits:		
Sand and gravel, sharp, black and gray	7	62
Bedrock		62
EXETER 25. V16-2. Alt. 38 ft. Long. 70°56'20". Lat. 42°58'45".		
Marine deposits:		
Sand, brown	6	6
Clay, gray, hard	14	20
Ice-contact deposits:		
Sand, brown, and gravel; some clay	5	25
Till:		
Hardpan	3	28
Refusal		28

DOVER

DO-1

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

Return

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
DOVER 69. W18-9. Alt. 125 ft. Lat. 43°00'43". Long. 70°52'31".		
Unconsolidated deposits, undifferentiated	40	40
Bedrock	89	129
DOVER 70. W18-7. Alt. 80 ft. Lat. 43°09'45". Long. 70°51'58".		
Unconsolidated deposits, undifferentiated	20	20
Bedrock	20	40
DOVER 71. W18-6. Alt. 55 ft. Lat. 43°11'35". Long. 70°52'36".		
Unconsolidated deposits, undifferentiated	25	25
Bedrock	198	223
DOVER 72. W18-2. Alt. 150 ft. Lat. 43°13'25". Long. 70°57'20".		
Ice-contact deposits:		
Sand and gravel, gray; some clay	16	16
Gravel, brown (good water-bearing material)	17	33
Sand, gray; some clay	27	60
Till:		
Hardpan	1	61
Bedrock		61
DOVER 73. W18-9. Alt. 105 ft. Lat. 43°09'19". Long. 70°52'40".		
Unconsolidated deposits, undifferentiated	80	80
Bedrock	86	106
DOVER 74. W18-9. Alt. 95 ft. Lat. 43°09'36". Long. 70°53'38".		
Marine deposits:		
Clay	38	38
Silt	10	48
Ice-contact deposits:		
Clay, sandy; some sand, fine	6	54
Refusal		54
DOVER 75. W18-7. Alt. 42 ft. Lat. 43°08'00". Long. 70°50'14".		
Unconsolidated deposits, undifferentiated:		
Gravel, coarse	5	5
Marine deposits:		
Clay	25	30
Ice-contact deposits:		
Sand, fine	28	58
Refusal		58
DOVER 76. W18-7 Alt. 12 ft. Lat. 43°07'43". Long. 70°50'12".		
Marine deposits:		
Sand, fine	5	5
Clay	25	30
Ice-contact deposits:		
Gravel	13	43
DOVER 77. W18-7. Alt. 125 ft. Lat. 43°09'58". Long. 70°52'24". (Log starts in bottom of gravel pit about 25 ft. below original land surface.)		
Ice-contact deposits:		
Sand, fine	10	10
Gravel, coarse, dry	26	36
Bedrock		36
DOVER 78. W18-7. Alt. 8 ft. Lat. 43°07'35". Long. 70°50'11".		
Marine deposits:		
Sand	10	10
Clay, very soft	28	38
Sand, fine, and silt	8	46
Ice-contact deposits:		
Sand and gravel	40	86
Bedrock (assumed)		86
DOVER 79. W18-7. Alt. 10 ft. Lat. 43°07'40". Long. 70°50'30".		
Marine deposits:		
Sand	10	10
Clay, very soft	60	70
Ice-contact deposits:		
Sand	9	79
Bedrock (assumed)		79
DOVER 80. W18-3. Alt. 803 ft. Lat. 43°13'43". Long. 70°53'53".		
Ice-contact deposits:		
Sand and gravel	90	90
Bedrock	505	595
DOVER 81. W18-5. Alt. 145 ft. Lat. 43°11'11". Long. 70°55'29".		
Marine deposits:		
Sand, fine	30.0	30.0
Sand and clay	57.5	87.5
DOVER 82. W18-9. Alt. 100 ft. Lat. 43°09'52". Long. 70°53'59".		
Outwash and shore deposits:		
Clay and sand, gray	10	10
Marine deposits:		
Clay and sand, brown	35	45
Sand, clay, and gravel	20	65
Ice-contact deposits:		
Sand and gravel	35	100
Bedrock		100
DOVER 83. W18-2. Alt. 135 ft. Lat. 43°13'21". Long. 70°57'07".		
Ice-contact deposits:		
Fill	10	10
Sand and gravel	71	81
Till:		
Hardpan	10	91
Bedrock		91
DOVER 84. W18-6. Alt. 160 ft. Lat. 43°10'04". Long. 70°54'07".		
Ice-contact deposits:		
Sand, fine; scattered gravel	140.0	140.0
Unconsolidated deposits, undifferentiated:		
Clay	20.0	160.0
Gravel	8.5	168.5
Bedrock		168.5
DURHAM 5. W18-8. Alt. 30 ft. Lat. 43°08'09". Long. 70°56'10".		
Till:		
Sand and rocks	10	10
Bedrock:		
Exeter diorite	488	498
DURHAM 6. W18-8. Alt. 27 ft. Lat. 43°08'12". Long. 70°56'14".		
Unconsolidated deposits, undifferentiated	4	4
Bedrock:		
Exeter diorite	546	550
DURHAM 7. W18-8. Alt. 37 ft. Lat. 43°08'31". Long. 70°55'00".		
Marine deposits:		
Clay	50	50
Sand, fine	5	55
Clay	30	85
Bedrock	110	195
DURHAM 8. W17-1. Alt. 95 ft. Lat. 43°07'12". Long. 70°58'01".		
Marine deposits:		
Topsoil	4	4
Clay, brown	6	10
Sand, fine, traces of clay	18	31
Ice-contact deposits:		
Sand, medium to coarse; some gravel	22	53
Sand, fine, tight	5	58
DURHAM 10. W18-7. Alt. 95 ft. Lat. 43°07'36". Long. 70°58'12".		
Ice-contact deposits:		
Topsoil	6.0	6.0
Sand, coarse, and gravel, medium; trace of clay	10.0	16.0
Sand, coarse, and gravel, medium	10.0	26.0
Sand, coarse	5.0	31.0
Sand, coarse, and gravel, fine; trace of clay	15.0	46.0
Coarse material, no sample recovery	5.0	51.0
Sand, fine, and clay	36.8	87.8
DURHAM 11. W18-7. Alt. 80 ft. Lat. 43°07'42". Long. 70°57'50".		
Marine deposits:		
Topsoil	4.0	4.0
Clay, blue	19.0	23.0
Sand, fine, brown	4.0	27.0
Clay, blue	8.0	35.0
Sand, fine, brown	5.0	40.0
Till:		
Sand, fine, gray, and clay; gravel, sharp	7.5	47.5
Refusal		47.5
DURHAM 12. W17-1. Alt. 75 ft. Lat. 43°08'00". Long. 70°57'40".		
Marine deposits:		
Clay, firm	10.0	10.0
Till:		
Clay and boulders	10.3	20.3
Refusal		20.3
DURHAM 13. W18-9. Alt. 10 ft. Lat. 43°09'03". Long. 70°53'19".		
Marine deposits:		
Clay	50	50
Sand	10	60
Bedrock	116	176
FARMINGTON 1. V20-8. Alt. 855 ft. Lat. 43°22'37". Long. 71°02'45".		
Ice-contact deposits:		
Sand and gravel	55	55
FARMINGTON 2. V20-8. Alt. 857 ft. Lat. 43°22'47". Long. 71°02'56".		
Ice-contact deposits:		
Sand, fine	15	15
Bedrock	4	19
FARMINGTON 4. V19-3. Alt. 886 ft. Lat. 43°21'28". Long. 71°01'50".		
Ice-contact deposits:		
Sand and gravel	26	26
FARMINGTON 5. V19-2. Alt. 885 ft. Lat. 43°22'13". Long. 71°02'36".		
Ice-contact deposits:		
Sand and gravel, coarse, cobbly	40	40
Sand	25	65
Gravel, coarse	13	78
Bedrock	145	223
LEE 4. W18-7. Alt. 112 ft. Lat. 43°09'16". Long. 70°59'08".		
Ice-contact deposits:		
Topsoil	5.0	5.0
Sand, medium, brown, and gravel	11.0	16.0
Sand, medium, gray, and gravel	10.0	26.0
Sand, coarse, gray, and gravel	6.0	32.0
Sand, medium, gray, and gravel	6.0	38.0
Sand, coarse, and broken rock, brown	5.0	43.0
Sand, medium, and gravel	4.5	47.5
Sand, coarse, and gravel	3.5	51.0
Refusal		51.0
LEE 5. W18-7. Alt. 112 ft. Lat. 43°09'16". Long. 70°59'09".		
Ice-contact deposits:		
Loam and sand	1.5	1.5
Sand, medium to coarse	36.5	38.0
Sand, coarse, and gravel, fine; a trace of clay	7.0	45.0
Sand, coarse; some gravel, fine	3.0	48.0
LEE 10. V17-3. Alt. 190 ft. Lat. 43°07'17". Long. 71°00'48".		
Ice-contact deposits:		
Sand and gravel	75	75
Bedrock:		
Elliot formation	79	154
LEE 11. V17-3. Alt. 195 ft. Lat. 43°07'27". Long. 71°00'34".		
Ice-contact deposits:		
Sand and gravel	45	45
Bedrock	75	120

TABLE 2. EXPLORATORY WELL LOGS - 1970 PROGRAM (Cont.)

Well No.	Depth		Description	Remark
70-17	0-20	ft	Brown sand & small gravel	S.W.L. = 36 ft
	20-30	ft	Fine brown sand	Left in open end
	30-40	ft	Brown fine silty sand	at 74 ft
	40-55	ft	Brown fine sand, small gravel & clay	
	55-63	ft	Brown sand & clay	
	63-75	ft	Brown fine sand & small gravel mixed with clay	
	75-80	ft	Brown & gray clay	
	80-95	ft	Gray silty sand & clay	
	95-102	ft	Gray clay	
			Refusal at 102 ft	
70-18	0-20	ft	Brown fine sand	S.W.L. = 34 ft 7-in
	20-28	ft	Brown sand & gravel	Left in open end
	28-40	ft	Medium brown sand & small gravel	
	40-58	ft	Fine brown sand, small gravel & clay	
	58-74	ft	Fine sand & clay	
			Refusal at 74 ft	
1 County Farm	0-26	ft	Soft gray clay	S.W.L. = 2 ft 4-in
	26-39	ft	Sharp slate type gravel & clay	Set 10 ft of 30 slot screen at 42-49 ft
	39-49	ft	Fine sand, sharp gravel & clay	Iron 5.0 pH 6.5 mg 0.2 Hardness 6 grs
	49-53	ft	Hard pan	Pulled out

DURHAM

DU-1

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. WATER DEPT. Test No. #28 AND #28A ob

Address MORGAN'S GRAVEL PIT OFF PACKER FALLS RD

Well located at IN LEE N.H. in County, State of N.H.

Date Drilling started 6-16-77 Date Test Hole Completed 6-17-77

Total depth to bottom of Well 51' Diameter Test Hole 2½"

Water stands when not pumping 17' feet 11" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	28'	COARSE BROWN SAND
		AND GRAVEL
28'	35'	BROWN AND GRAY CLAY
		WITH COARSE GRAVEL
35'	47'	BROWN FINE TO COARSE
		SAND AND GRAVEL.
47'	49'	DIRTY BROWN GRAVEL
	51'	REFUSAL
Set 40 slot screen at 47' in #28 exposed screen 6'. Inside thread on riser.		
Set 40 slot screen at 47' in #28A exposed 6ft. Inside thread on riser		

Did Well Clear Up? YES

How Long? ½ hr

Time Pumped? 3hrs + 1hr OBSERVATION

Drawdown 2' Ft. 2" In.

Capacity 30 gpm VAC 27½"

Time Required for Recovery?

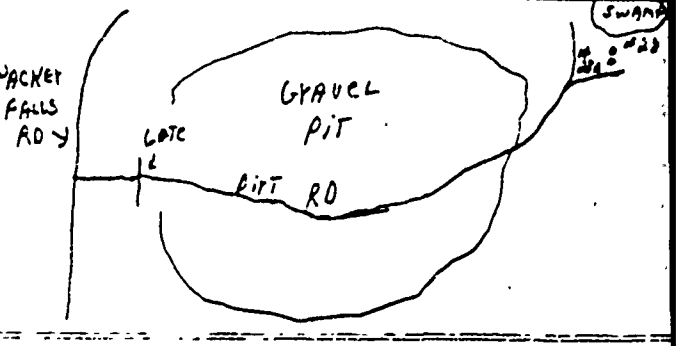
Was Well Pulled? NO

Observation YES What Depth? 47'

gpm 30 VAC 27" STATIC 17'8"

Was Observation Well Pulled? NO

Map of Location



Remarks and opinion of Test

Driller John Graglia

Helpers Ted Pelczar

D. L. MAHER CO.
LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. WATER DEPT Test No. #29

Address MORGAN'S GRAVEL PIT OFF PACKER FALLS RD

Well located at IN LEE N.H. in County, State of N.H.

Date Drilling started 6-28-77 Date Test Hole Completed 6-30-77

Total depth to bottom of Well 82' Diameter Test Hole 24"

Water stands when not pumping 12' feet 0 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21	COARSE BROWN SAND
		AND GRAVEL
21'	49'	COARSE BROWN SAND
		LARGE GRAVEL SHARP
49'	56'	LIGHT GRAYISH BROWN
		SAND AND GRAVEL
56'	79'	GRAYISH BROWN FINE SAND
		AND GRAVEL
	82'	REFUSAL
set 40 slot screen		set 82' exposed screen
2' PUMPED 40 GPM		VAC 24" STATIC 12'3"
pulled screen and reset at 56' exposed		
screen 6' well tight pulled screen		
and reset at 49' exposed screen 6'		
pumped 20 gpm VAC 29" pulled screen		
reset at 42' exposed 6' well tight		

Did Well Clear Up? YES

How Long? ½ hr

Time Pumped? 3 hrs pumped

Drawdown Ft. In.

Capacity

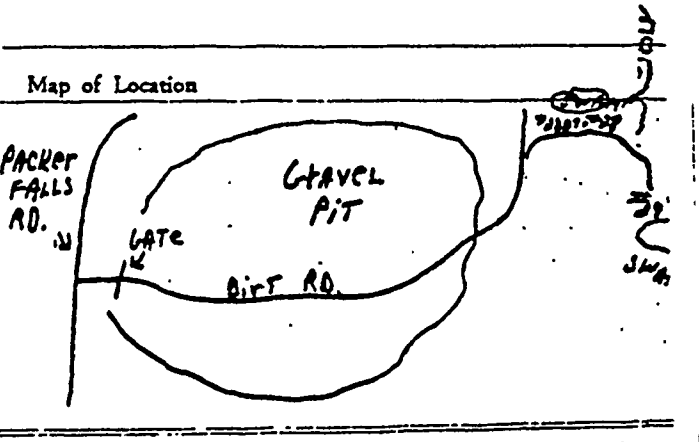
Time Required for Recovery?

Was Well Pulled? YES

Observation NO What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John Broglia

Helper Fred Pelkey

Water System & Source Study

NED - Fess

Fessenden

Byrne 112

STEVEN L. DEAN
Consultant Geologist
Box 487
Parishville, N.Y.
13672

May 15, 1977

Mr. Joseph Murphy
Whitman & Howard, Inc.
45 Williams St.
Wellesley, Massachusetts
02181

Dear Mr. Murphy:

Seismic investigations for the purpose of locating new municipal water sites for the City of Portsmouth, New Hampshire were completed on April 25, 1977.

This report is a complete presentation of my findings. I would be pleased to discuss this report with you at your convenience.

Sincerely yours,

Steven L. Dean

Steven L. Dean

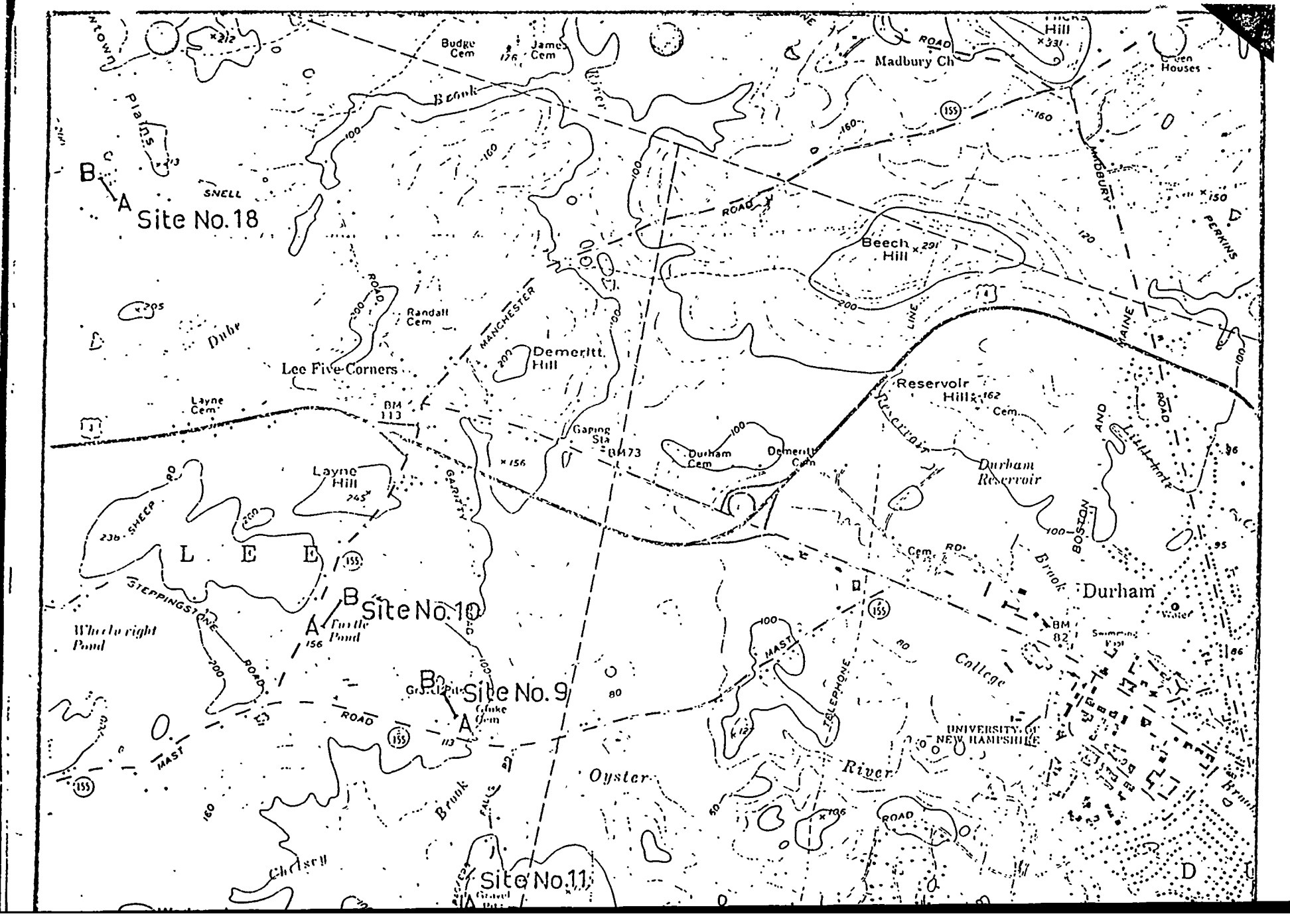
permeablity, and depth and should recieve further testing.

Site number 9 is located in the base of a gravel pit approximately 600 feet north of the intersection of Garitty Road and State Route #155A in the Town of Lee. A layer of loose, dry sands extends to a depth of about 9 to 12 feet where a second denser layer is encountered, This second layer has a velocity indicative of a tight silt-sand-clay mixture or an equally impermeable glacial till and it extends to bedrock at a depth of approximately 25 to 27 feet.

Site number 10 is located approximately 1,800 feet northeast of the intersection of State Routes #155 and #155A in the Town of Lee. Here, approximately 10 to 11 feet of unsaturated silty sands directly overlie bedrock. No further testing is recommended.

Site number 11 is located about 2,000 feet south of the intersection of Packers Falls Road and State Route #155A in the Town of Lee. At this site between 7 and 13 feet of loose, dry sands overlie a second layer which is about 17 feet thick and has a velocity of 4400 feet per second. The velocity of this layer is indicative of permeable sands and gravels but is not quite high enough to indicate sufficient saturation. The lack of sufficient thickness right at the site coupled with the evidence of permeable sands would seem to warrent further well testing be done slightly to the north or east of this locality.

Site number 12 is located about 1,000 feet north of the intersection of Packers Falls Road and Wednesday Road in the Town of Durham. Here, approximately 7 to 8 feet of overburden overlies a second layer which extends to a depth of about 42 to 48 feet where bedrock is encountered. This second layer has a seismic velocity of 3,400 feet per second which is usually indicative of highly permeable sands and gravels but lacking in water content. It is possible that by further testing in this area a location might be found where this apparently permeable material


Site No. 18
Site No. 10
Site No. 9
Site No. 11
Lee Five Corners
Layne Hill
Demeritt Hill
Beech Hill
Reservoir Hill
Durham Reservoir
Durham
Madbury Ch
Budge Cem
James Cem
Randall Cem
Layne Cem
Durham Cem
Demeritt Cem
Gaping Sta
Wheelwright Pond
Turtle Pond
Oyster River
College
UNIVERSITY OF NEW HAMPSHIRE
Boston and Maine
Maine
Boston
Brook
Road
Stepping Stone
Sheep
Mast
Telephone
Falls
Garrity
Manchester
Madbury
Perkins
Snell
Plains
Dube
Chesley
Brown
Line
Reservoir
Swimming
Houses
BM 113
BM 173
BM 82
L E E

EPPING

EP-1

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

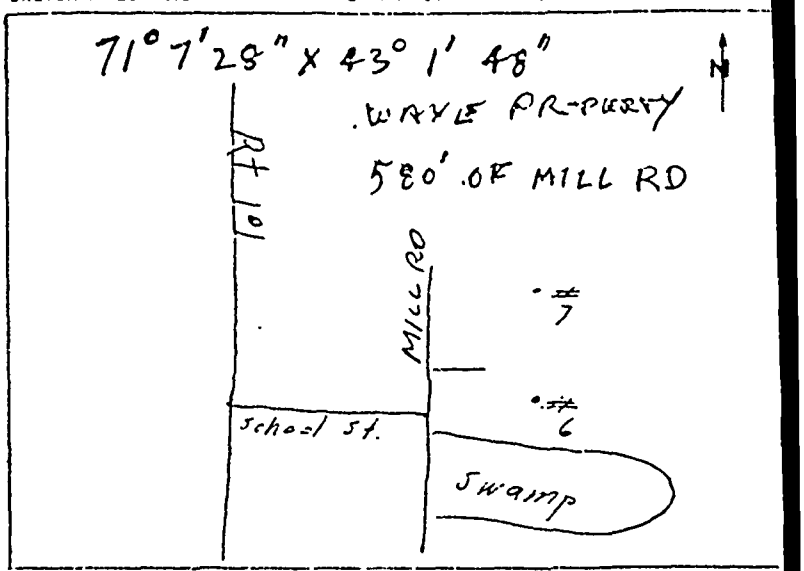
DATE 8/2/78 TEST WELL NO #7

FOR Epping N.H.

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

2'

2½"

0-5' Top soil

5'-30' brown, gray, gravel

30'-35' brown, gravel 31'

35'-42' red silt, gray clay 36'

TOTAL WELL DEPTH 42'

BOTTOM OF TEST HOLE

OBS. WELL: NO. ____ DISTANCE ____ DEPTH ____

NO. ____ DISTANCE ____ DEPTH ____

WELL SCREEN: TYPE 6" LENGTH 5' OPENING ____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION ____

TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL

STATIC LEVEL ____ ORIFICE ____ AIR LINE LENGTH ____

QUALITY: PH ____ HARD ____ IRON ____ MANGANESE ____

ODOR ____ TASTE ____ LAB. SAMPLE ____

PIPE LEFT: IN WELL 30' FT., IN OBS. WELL ____ FT.

SCREEN LEFT: IN WELL 5' FT., IN OBS. WELL ____ FT.

PIPE: TO BE LEFT ____ TO BE PULLED LATER ____

REMARKS

75 GPM

Vac 19

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Frank Pelard

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 8/3/4/78 TEST WELL NO #8

FOR

LOCATION

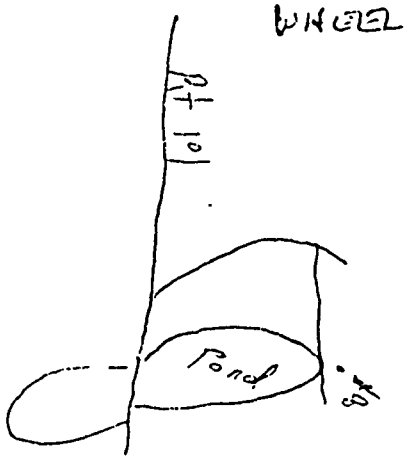
PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

71°7'52" x 43° 2'17"

N

WHEELER PROP.



LOG OF WELL

GROUND SURFACE 0'

3'

2½

0-20 brown gravel

20-30 red gravel

30-35 broken sharp gravel

35-46 36' 41' brownish gravel

TOTAL WELL DEPTH 46'

BOTTOM OF TEST HOLE

OBS. WELL: NO DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS WELL	OBS. WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

REMARKS

25 GPM

Vac 26

pull tight

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Mark Pollard

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

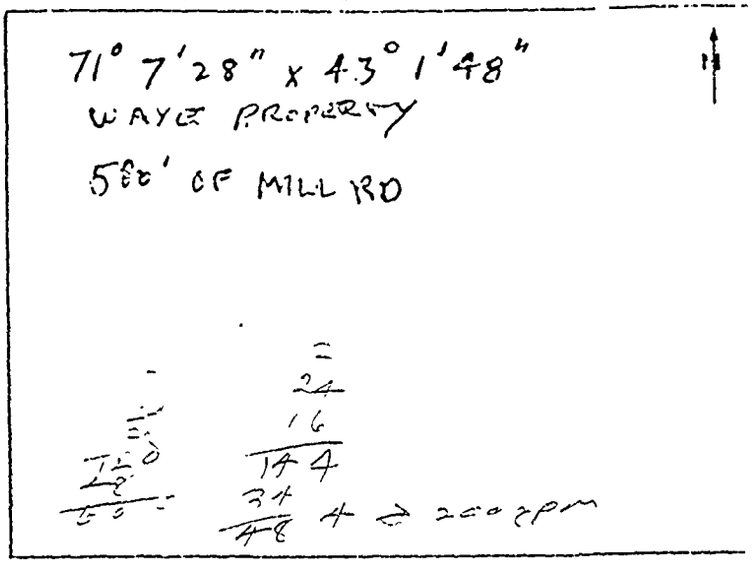
DATE 8/11/78 TEST WELL NO. #6

FOR Epping N.H.

LOCATION

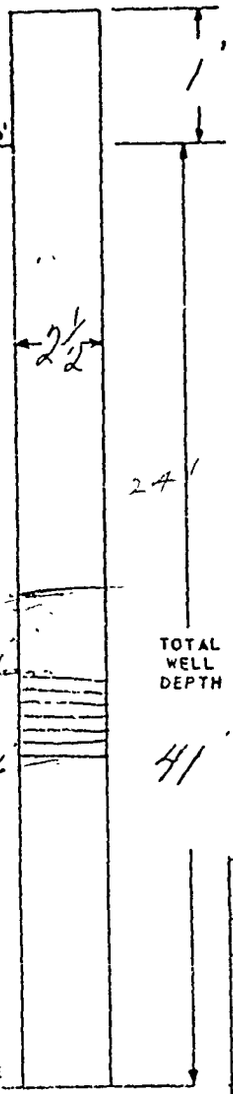
PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'



0-5'
Top soil

5-20'
brown, gray, gravel, silt,

20-30'
brownish silt

30-35'
brown gravel

35-41'
red silt, brown clay

BOTTOM OF TEST HOLE

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE Yc LENGTH 5' OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP WELL	OBS. WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OB WE

REMARKS

26' 50 GPM Vac 24
No Iron
No Mag.
PH 5.5
Hardness 51 parts

STATIC LEVEL 5.10' ORIFICE AIR LINE LENGTH

QUALITY: PH HARD IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL 30' FT., IN OBS. WELL FT

SCREEN LEFT: IN WELL 5' FT., IN OBS. WELL FT

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Mark Roland
FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 8/7/78 TEST WELL NO #9

FOR Epping New Hampshire

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

ABANDONED School St
71°7'46" X 43°2'2"

580' Effhill Road

LOG OF WELL

GROUND SURFACE 0'

0-3' Top Soil

3-25' brown gravel

25-30' gray gravel

30-35' brown gravel Sharp

35-42' broken and sharp

37'

42'

TOTAL WELL DEPTH 42'

BOTTOM OF TEST HOLE

REMARKS

well pulled tight all broken and sharp no good pulled well

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP WELL	OBS WELL	OBS. WELL	TIME	GPM	PUMP WELL	OBS WELL	OBS WELL

STATIC LEVEL 7'6" ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Mark Pollard

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 3/8/72 TEST WELL NO #10

FOR Epping New Hampshire

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

OFF DRAG STRIP RD
71° 5' 39" x 43° 1' 24"

N

LOG OF WELL

GROUND SURFACE 0'

2'

2½"

TOTAL WELL DEPTH

13'

BOTTOM OF TEST HOLE

REMARKS

no good pulled well

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION

TIME	GPM	PUMP WELL	OBS WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS WELL	OBS WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD IRON MANGANESE

ODOR TASTE LAB SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

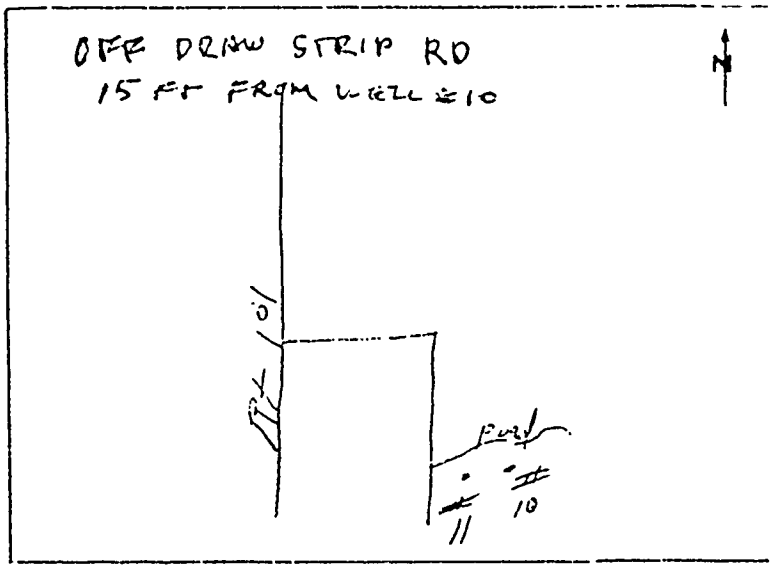
DATE 8/8/78 TEST WELL NO #11

FOR Epping New Hampshire

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

1'

2½"

TOTAL WELL DEPTH 16'

BOTTOM OF TEST HOLE

REMARKS

410 gpd pulled well.

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS WELL	OBS WELL	TIME	GPM	PUMP WELL	OBS WELL	OBS WEL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Dick Pelard

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

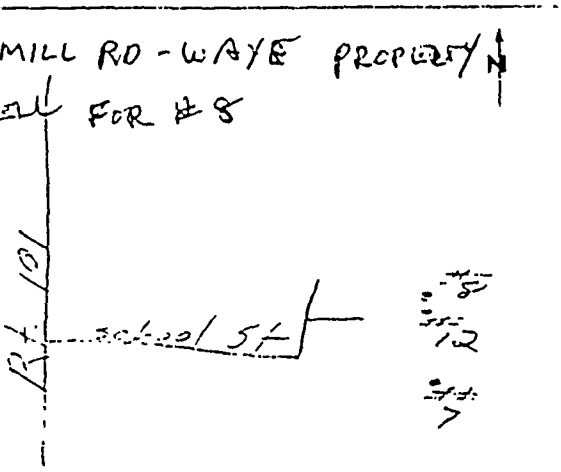
DATE 8/10/78 TEST WELL NO # 12 obs.

FOR Epping New Hampshire

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

2'

obs.

2½"

TOTAL WELL DEPTH

41'

32'

10

37'

BOTTOM OF TEST HOLE

REMARKS

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP WELL	OBS WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL

STATIC LEVEL 5' 5" ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL 30' FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL 5' FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 8/15/38 TEST WELL NO ~~#~~ 13

FOR Epping N.H

LOCATION

PROPERTY OWNER Epping N.H.

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

Hartford Property

71° 6' 35" X 43° 1' 34"

N

LOG OF WELL

GROUND SURFACE 0'

0-2'
Top soil

2'-20'
Brown silt gravel

20'-41'
grey silt clay

4'

2½"

TOTAL WELL DEPTH 41'

BOTTOM OF TEST HOLE

REMARKS

No good pull well

OBS. WELL: NO. ____ DISTANCE ____ DEPTH ____

NO ____ DISTANCE ____ DEPTH ____

WELL SCREEN: TYPE ____ LENGTH ____ OPENING ____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION ____

TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS WELL	OBS WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY PH ____ HARD. ____ IRON ____ MANGANESE ____

ODOR ____ TASTE ____ LAB. SAMPLE ____

PIPE LEFT: IN WELL ____ FT., IN OBS WELL ____ FT

SCREEN LEFT: IN WELL ____ FT., IN OBS. WELL ____ FT

PIPE: TO BE LEFT ____ TO BE PULLED LATER ____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Frank Pollard

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

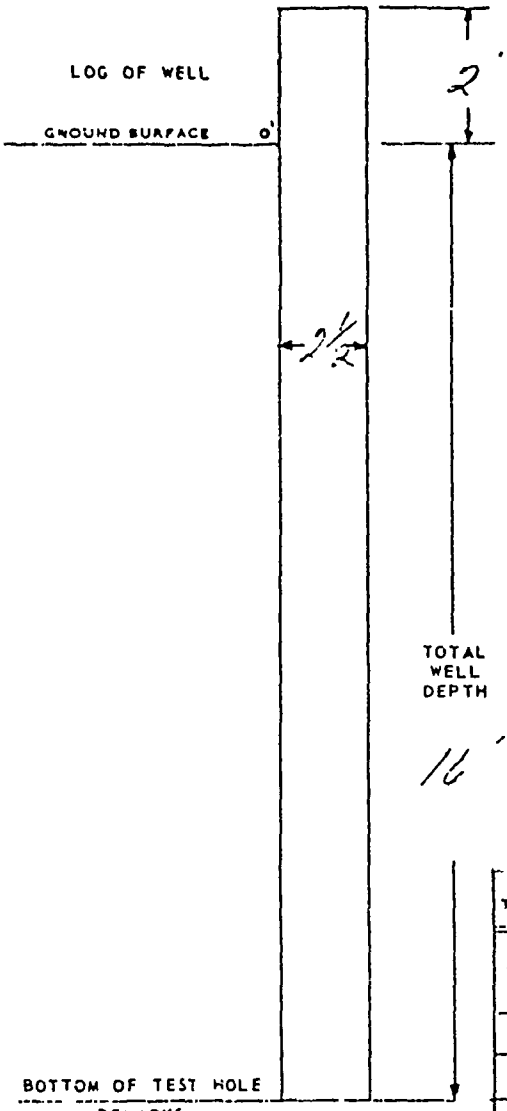
DATE 8/16/78 TEST WELL NO. #14

FOR Epping NH

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



71° 5' 29" X 43° 1' 35"
LAUDIE PROPERTY OF
FREEMONT RD
3000' OF GPW #1

N

OBS WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION.

TIME	GPM	PUMP WELL	OBS WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS WELL	OBS WELL

REMARKS

No good pulled Well

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Frank P. Layne

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 8/16/78 TEST WELL NO #15

FOR Epping N.H.

LOCATION

PROPERTY OWNER

LOG OF WELL

GROUND SURFACE 0'

3'

2½"

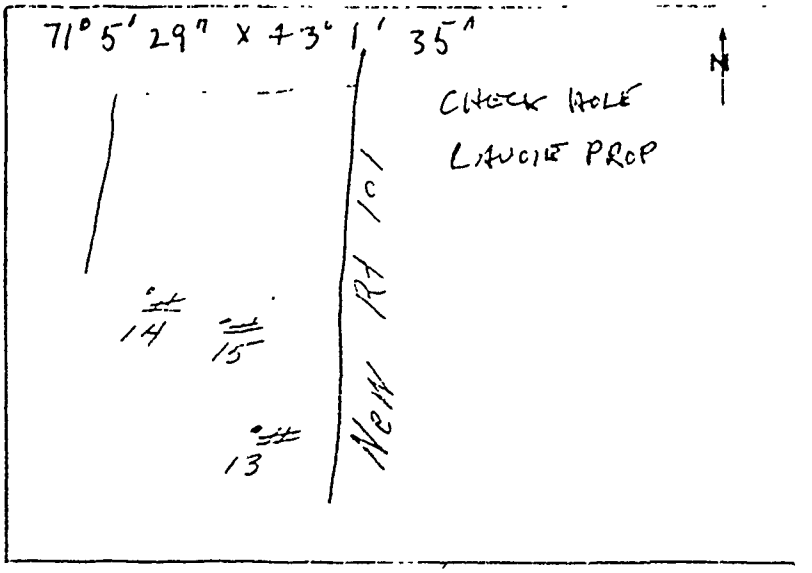
TOTAL WELL DEPTH 17.10

BOTTOM OF TEST HOLE

REMARKS

No good pulled

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



OBS. WELL NO. _____ DISTANCE _____ DEPTH _____

NO. _____ DISTANCE _____ DEPTH _____

WELL SCREEN: TYPE _____ LENGTH _____ OPENING _____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION

TIME	GPM	PUMP WELL	OBS. WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL

STATIC LEVEL _____ ORIFICE _____ AIR LINE LENGTH _____

QUALITY, PH _____ HARD _____ IRON _____ MANGANESE _____

ODOR _____ TASTE _____ LAB. SAMPLE _____

PIPE LEFT: IN WELL _____ FT., IN OBS. WELL _____ FT

SCREEN LEFT: IN WELL _____ FT., IN OBS. WELL _____ FT.

PIPE: TO BE LEFT _____ TO BE PULLED LATER _____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

FOR LAYNE - NEW YORK CO., INC

EPPING

EP-2

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 7/31/78 TEST WELL NO. #1

FOR Epping NH

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

Rail Prop

71°1'50" x 43°3'8"

N

LOG OF WELL

GROUND SURFACE 0'

0 - 10'
boulders

2½"

TOTAL WELL DEPTH 10'

BOTTOM OF TEST HOLE

REMARKS

No good
pull well

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS WELL	Obs WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Hank Poland

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 7/31/78 TEST WELL NO. #2

FOR Epping N.H.

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

Hall Pump

2 Ft away FROM #1

N

Hall PROPERTY

LOG OF WELL

GROUND SURFACE 0'

0-10' boulders

2½"

TOTAL WELL DEPTH 10'

BOTTOM OF TEST HOLE

REMARKS

No good pull well

OBS. WELL: NO. DISTANCE ' DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP WELL	OBS. WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS WEL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Frank Palica

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 7/31/78 TEST WELL NO #3

FOR Epping N.H.

LOCATION

PROPERTY OWNER

LOG OF WELL

GROUND SURFACE 0'

2

0-13'
boulders

2½"

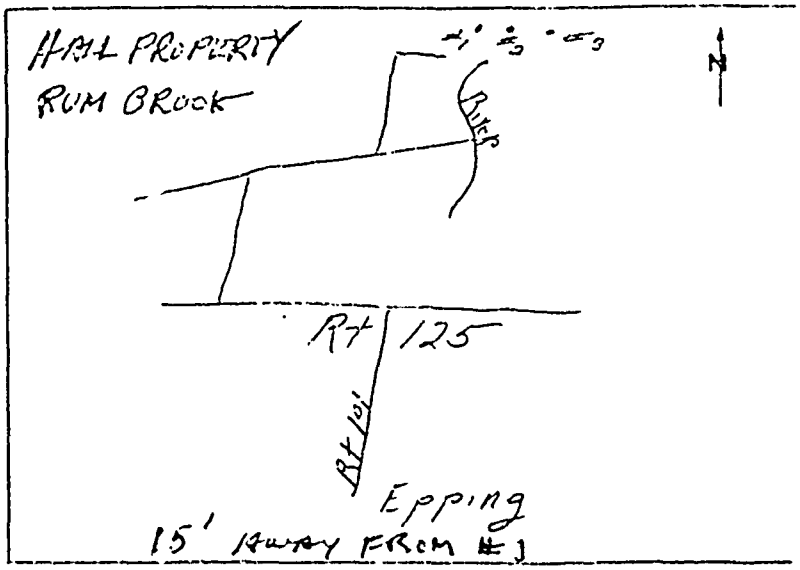
TOTAL WELL DEPTH 13'

BOTTOM OF TEST HOLE

REMARKS

No good
pull well.

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



OBS WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCHLEN TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY. PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Frank Colard
FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

Layne NEW YORK CO., INC.

DATE 8/1/78 TEST WELL NO. #4

FOR Epping N.H.

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

T. 1° 2' 17" x 43° 3' 10"

N

HALL PROPERTY RUMBROOK AREA

LOG OF WELL

GROUND SURFACE 0'

1'

2½"

0-14' boulders

TOTAL WELL DEPTH 14'

BOTTOM OF TEST HOLE

REMARKS

No good

OBS WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION

TIME	GPM	PUMP. WELL	OBS WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS WELL	OBS WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD IRON MANGANESE

ODOR TASTE LAB SAMPLE

PIPE LEFT IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Frank Leland

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

Layne NEW YORK CO., INC

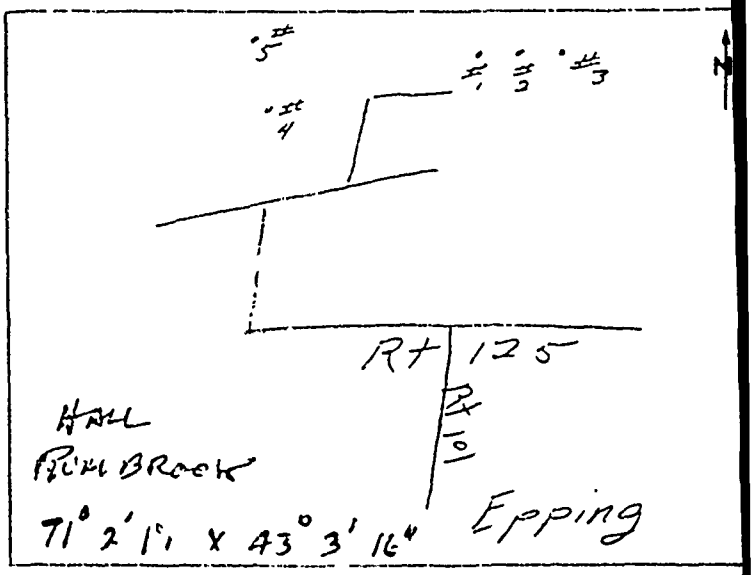
DATE 8/4/78 TEST WELL NO. #5

FOR Epping NH.

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

2'

2 1/2"

0-16' boulders

TOTAL WELL DEPTH 16'

BOTTOM OF TEST HOLE

REMARKS

No good pull well

OBS. WELL: NO. DISTANCE DEPTH

NO DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP WELL	OBS. WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL

SCREEN LEFT: IN WELL FT., IN OBS WELL

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Mark Pelsoci

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 11/15/78 TEST WELL NO ~~#~~ 16

FOR Epping N.H.

LOCATION Old Delaney Rd.

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

N

71° 2' 44" x 43° 2' 31"

LOG OF WELL

GROUND SURFACE 0'

2

0-10' peat

10'-20' Blue clay

20-25' Brown silt

25-35' Brown silt traces of gravel

35-47' gray clay Hard pan

2½'

TOTAL WELL DEPTH

BOTTOM OF TEST HOLE 47'

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL

STATIC LEVEL ORIFICE AIR LINK LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

REMARKS

No good pulled out.

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Mark Coland

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

Layne NEW YORK CO., INC.

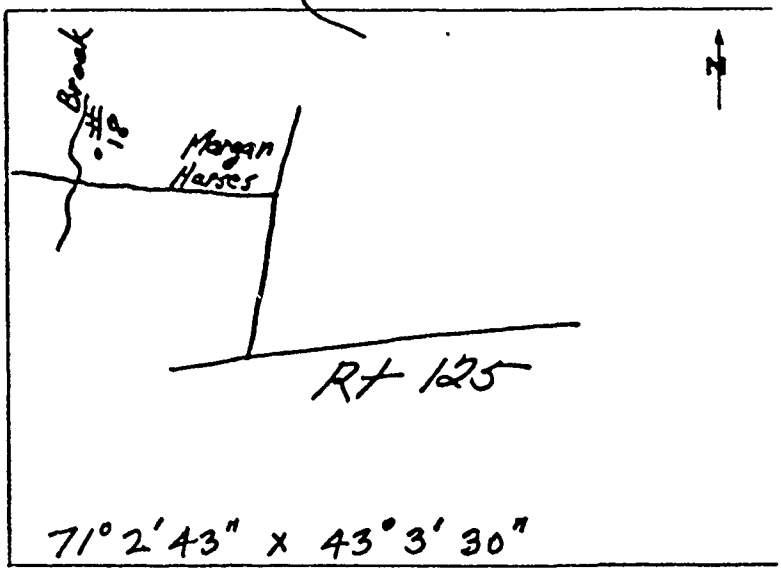
DATE 11/21/22/78 TEST WELL NO. ~~4~~ 18

FOR Epping N.H.

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION (GIVE APPROXIMATE DISTANCES)



71° 2' 43" x 43° 3' 30"

LOG OF WELL

GROUND SURFACE 0'

0 - 20' brown gravel

20' - 30' brown, gray silt

30' - 40' gray silt clay

40' - 50' traces of fine gravel 40'

50' - 61' traces silt Hardpan clay, little gravel 51'

2½"

TOTAL WELL DEPTH

BOTTOM OF TEST HOLE 61'

REMARKS

well wouldn't clear up

Set screens @ 41 - 51 Ft
& 51 - 61 Ft

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE 6" LENGTH 11' OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL
	20								

STATIC LEVEL 5'10" ORIFICS AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Mark Poland
FOR LAYNE - NEW YORK CO., INC.

GREENLAND

GR-1

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #5 AND 5A-77

Address

Well located at CARLEY'S PIT OFF BREAKFAST HILL RD County, State of N.H.

Date Drilling started 5-13-77 Date Test Hole Completed 5-13-77

Total depth to bottom of Well Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#5	0-4'	HIT LARGE ROCK
#5A	0-9'	LARGE GRAVEL TO REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

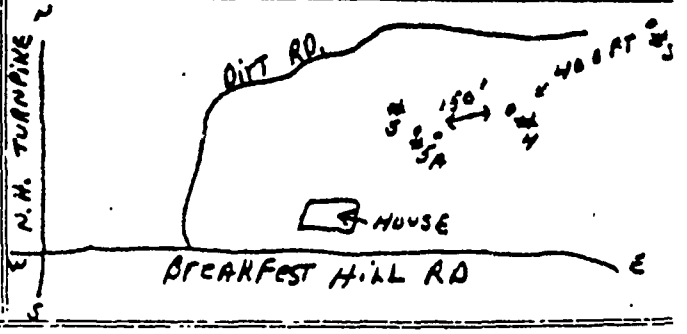
Time Required for Recovery?

Was Well Pulled? YES BOTH

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A. Braglia

Helpers B. Hargraves

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N. H. Test No. #6-77

Address

Well located at CORKEY'S AT OFF BREAKFEST HILL RD. County, State of N. H.

Date Drilling started 5-13-77 Date Test Hole Completed 5-13-77

Total depth to bottom of Well 40' Diameter Test Hole 2½"

Water stands when not pumping 8' feet 4" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	- 24'	fine brown sand and sharp gravel.
24'	- 35'	sharp brown sand and gravel trace of clay.
35'	- 40'	dirty brown sand and gravel trace of clay
	40'	REFUSAL.
set 40 slot screen exposed 6 ft		

Did Well Clear Up? YES

How Long? ½hr

Time Pumped? 1hr

Drawdown Ft. In.

Capacity 20 GPM VAC 23"

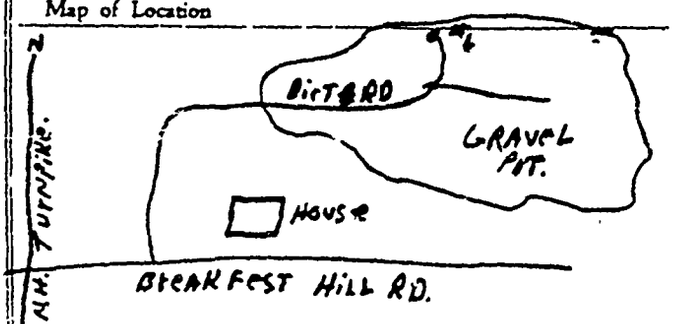
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A Braglia

Helper B. Hargraves

D. L. MAHER CO.
LOG OF TEST WELL

Log of Well for PORTSMOUTH N. H. Test No. #7 AND 7A OB-77

Address

Well located at STATE PIT IN GREENLAND N.H. OFF POST RD. in County, State of N.H.

Date Drilling started 5-13-77 Date Test Hole Completed 5-16-77

Total depth to bottom of Well 52' Diameter Test Hole

Water stands when not pumping 14' 6" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	7'	large broken gravel
7'	21'	light brown sand and gravel
21'	28'	fine brown sand and clay some sharp gravel
28'	35'	fine reddish brown sand and some gravel
35'	42'	grayish brown sand and sharp broken gravel
42'	49'	sharp gray broken gravel.
	52'	REFUSAL.

Set 40 slot screen at 49' exposed 6ft

Set. 40 slot screen at 49' in OB exposed 6ft Both screens have 7ft riser on top inside Dread.

Did Well Clear Up? YES

How Long? ½hr

Time Pumped? 2hrs + 4hrs OB well

Drawdown Ft. 8" In. AFTER 3HRS PUMPING STILL DROPPING

Capacity 75GPM VAC 17"

Time Required for Recovery?

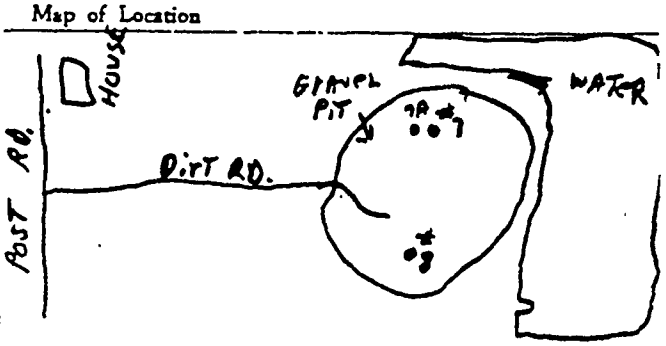
Was Well Pulled? NO

Observation YES What Depth? 49'

STATIC 14'7" 75GPM VAC 17"

Was Observation Well Pulled? NO

Map of Location



Remarks and opinion of Test

Driller John A Gaglia

Helper B. Hargraves

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #8-77

Address

Well located at STATE PIT IN GREENLAND N.H. OFF POST RD. in County, State of N.H.

Date Drilling started 5-16-77 Date Test Hole Completed 5-20-77

Total depth to bottom of Well 75' 6" Diameter Test Hole 2½"

Water stands when not pumping 14' feet 10" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	fine brown sand some gravel
21'	28'	fine brown sand trace of clay
28'	35'	fine reddish brown sand some gravel
35'	51'	dark reddish brown sand trace of clay
51'	75'	fine gray sand and clay some sharp gravel
	75'6"	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

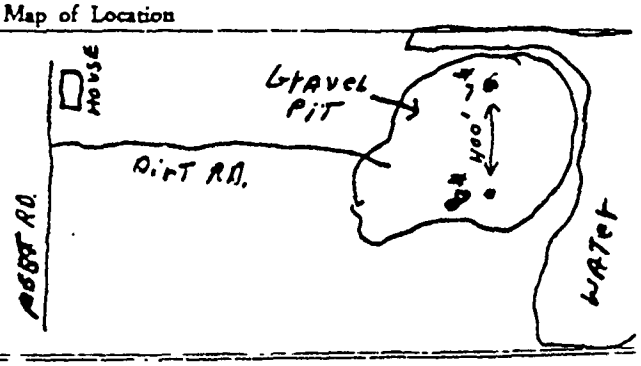
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A Goglia

Helper B. Hargrave

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. 9-77

Address

Well located at GRAVEL PIT, N GREENLAND N.H. OFF PORT RD. County, State of N.H.

Date Drilling started 5-20-77 Date Test Hole Completed 5-23-77

Total depth to bottom of Well 89' Diameter Test Hole 2½"

Water stands when not pumping 8' feet 3" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	21'	sharp gravel brown clay and fine sand
21'	28'	fine reddish brown sand some clay
28'	43'	fine brown sand and clay
43'	89'	gray fine sand
	89'	REFUSAL

Did Well Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

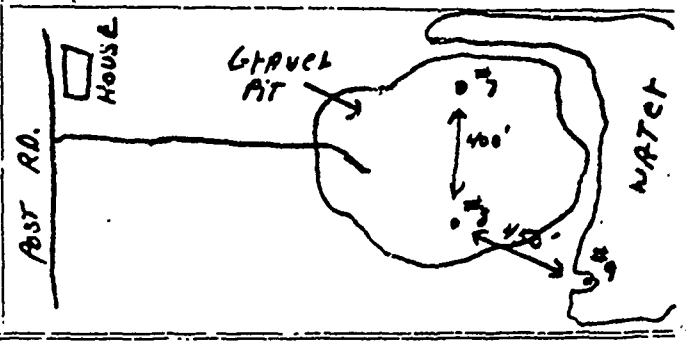
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test:

Driller John A Braglia

Helper B. Hargrave

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for POTTSMOUTH N. H. Test No. #19-77

Address

Well located at OFF BREAKFAST HILL RD in County, State of N.H.

Date Drilling started 6-2-77 Date Test Hole Completed 6-2-77

Total depth to bottom of Well 29' Diameter Test Hole 2½"

Water stands when not pumping 5' feet 2" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	14'	sharp gravel some dirty brown sand.
14'	24'	brown and gray clay
24	29'	hard pan
	29'	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

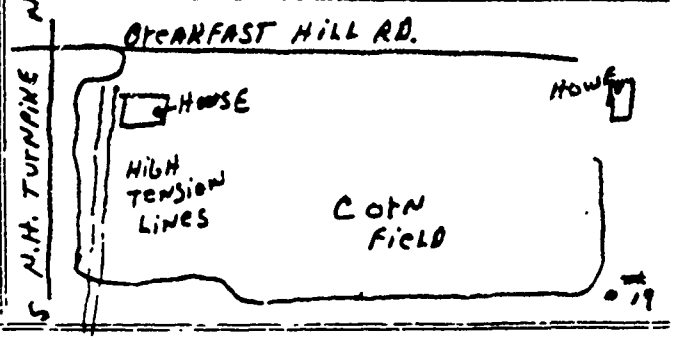
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A. Braglia

Helper T. Belezos

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #20-77

Address

Well located at OFF BREAKFAST HILL RD SOUTH side County, State of N.H.

Date Drilling started 6-2-77 Date Test Hole Completed 6-3-77

Total depth to bottom of Well 23' Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	7'	sharp gravel brown sand.
7'	21'	fine brown sand and clay.
	23'	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

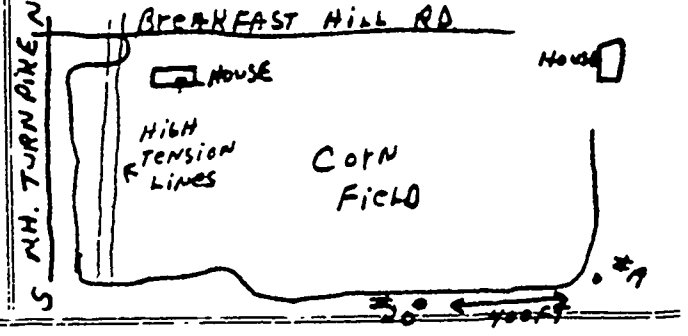
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A. Broglia

Helper T. Pelgar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH NH Test No. #21

Address

Well located at OFF BREAKFAST HILL RD SOUTH SIDE in County, State of N.H.

Date Drilling started 6-3-77 Date Test Hole Completed 6-6-77

Total depth to bottom of Well 38' Diameter Test Hole 2½"

Water stands when not pumping 12' feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	21'	sharp dirty gravel some coarse sand.
21'	28'	fine brown sand and gray clay.
28'	36'	gray clay
36'	38'	gray clay sharp gravel.
	38'	REFUSAL
No screen set		

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

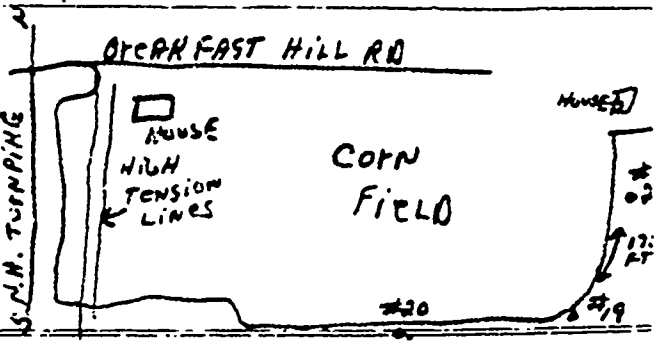
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John Gaglia

Helpers T. Pelczar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #22

Address

Well located at: OFF POST RD IN STRATHAM N.H. TOWN GRAVEL PIT. IN FIELD

County, State of N.H.

Date Drilling started 6-6-77 Date Test Hole Completed 6-6-77

Total depth to bottom of Well 74' Diameter Test Hole 2½"

Water stands when not pumping 7' feet 2" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	28'	brown and gray clay sharp gravel
28'	57'	gray fine sand
57'	70'	sharp gray sand and gray clay.
	74'	REFUSAL
No screen set		

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

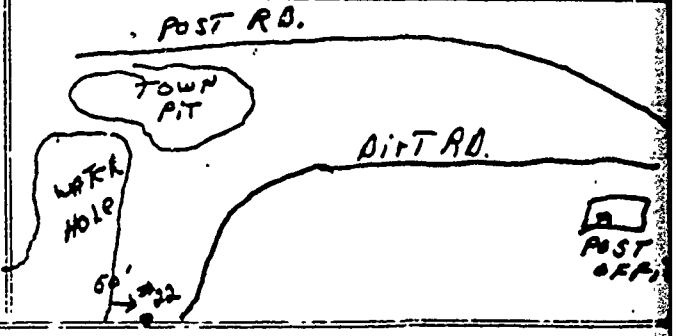
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John Graglia

Helper T. Belcher

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #23

Address OFF POST RD. IN STATHAM N.H.

Well located at IN STATE GRAVEL PIT 400' FROM in County, State of N.H.

Date Drilling started 6-7-77 Date Test Hole Completed 6-7-77

Total depth to bottom of Well 76' Diameter Test Hole 2±"

Water stands when not pumping 5' feet 2" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	28'	brown and gray clay.
28'	63'	fine gray sand and clay.
63'	76'	sharp gray gravel and clay.
	76'	REFUSAL
No screen set.		

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

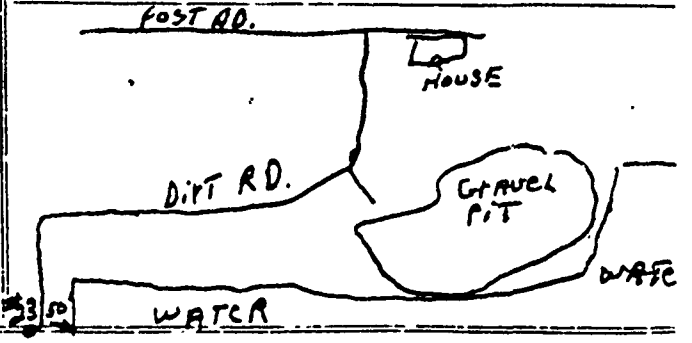
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John Graglia

Helpers T. Belanger

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for TOWN OF PORTSMOUTH N.H. Test No. #40-77

Address COAKLEY'S
Well located at PIT OFF BREAKFAST HILL RD. in County, State of N.H.

Date Drilling started 10-17-77 Date Test Hole Completed 10-17-77

Total depth to bottom of Well 23' Diameter Test Hole 6 1/2"

Water stands when not pumping 8' feet 9" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	SHARP DIRTY BROWN
		GRAVEL AND CLAY
	23'	REFUSAL

No screen was set

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

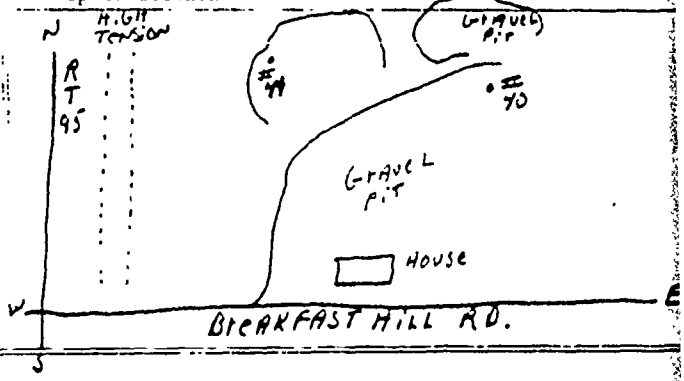
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A Englis

Helpers R Feigal

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Portsmouth Test No. 45

Address Vickery's LAND OFF RT 151 GREENLAND

Well located at ____ in ____ County, State of ____

Date Drilling started FEB 27-75 Date Test Hole Completed FEB 27-75

Total depth to bottom of Well 19' Diameter Test Hole 2½"

Water stands when not pumping ____ feet ____ inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	19'	HARDPAN TO LEDGE

Did Well Clear Up? —

How Long? —

Time Pumped? —

Drawdown — Ft. In.

Capacity

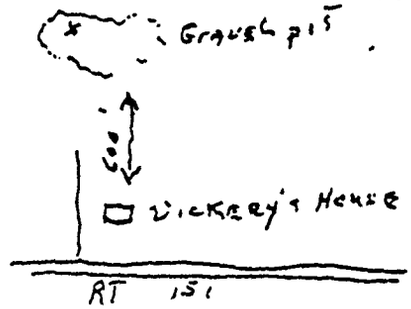
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller S. Kelly

Helpers T. Pelczar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for ... PORTSMOUTH ... Test No. 49

Address GRAVEL P.T. OFF 101 GREENLAND

Well located at ... in ... County, State of ...

Date Drilling started FEB 27-75 Date Test Hole Completed FEB 27-75

Total depth to bottom of Well 30' Diameter Test Hole 12"

Water stands when not pumping 6 feet 4" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	30	BROWN SAND
		GRAVEL GRAY CLAY
		H.T LEDGE
		30'

Did Well Clear Up? ~

How Long?

Time Pumped? —

Drawdown Ft. In.

Capacity —

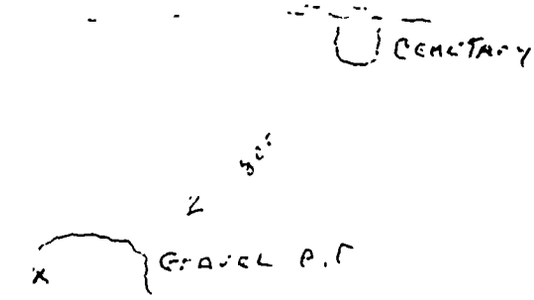
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C KELLY

Helper T PELCZAR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH Test No. 20

Address OFF 101 GREENLAND

Well located at ____ in ____ County, State of ____

Date Drilling started MAR 2-78 Date Test Hole Completed MAR 2-78

Total depth to bottom of Well 17' Diameter Test Hole 2½"

Water stands when not pumping — feet — inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	17'	HARDPAN TO LEDGE

Did Well Clear Up? _____

How Long? —

Time Pumped? —

Drawdown Ft. In.

Capacity

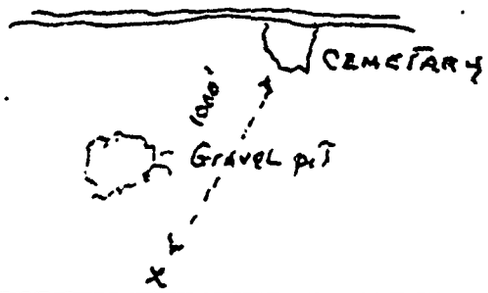
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. KELLY

Helpers T. PELCZAR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH Test No. 64

Address BREAKFAST HILL RD GRAVEL PIT

Well located at ..... in ..... County, State of .....

Date Drilling started MAY 3-78 Date Test Hole Completed MAY 3-78

Total depth to bottom of Well 23' Diameter Test Hole 2"

Water stands when not pumping ..... feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	23'	BROWN SAND
		GRAVEL
		LEDGE 23'

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

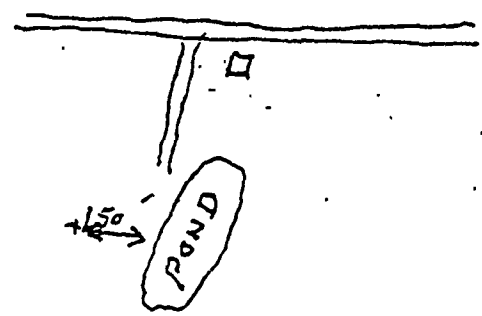
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test .....

Driller C. KELLY

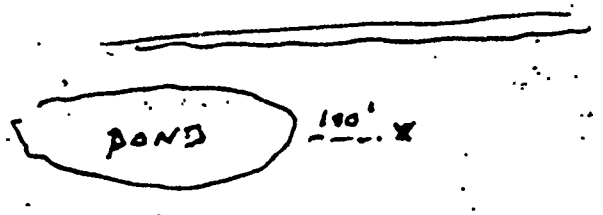
Helpers T. PALMER

D. L. MAHER CO.
LOG OF TEST WELL

Log of Well for PORTSMOUTH Test No. 62
Address BREAKEAST HILL RD GRAVEL PIT
Well located at ... in ... County, State of ...
Date Drilling started MAY 5 - 78 Date Test Hole Completed MAY 10 - 78
Total depth to bottom of Well 42 Diameter Test Hole 2½"
Water stands when not pumping 2' feet 3" inches from the surface of the ground

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	28'	BROWN SAND
		GRAVEL
28'	42'	GRAY SAND
		GRAVEL
		HIT LEDGE
		42'

Did Well Clear Up? 1 Hr
How Long? 1 Hr
Time Pumped? 4 Hr's
Drawdown Ft. 8 In.
Capacity 50 GPM
Time Required for Recovery? INSTANT
Was Well Pulled? NO
Observation YES What Depth? 42'
Was Observation Well Pulled? NO
Map of Location



Remarks and opinion of Test SET 50 SLOT SCREEN IN TEST WELL AND 2" WELL

Driller C KELLY
Helper T PELCZAR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH Test No. 7L

Address BREAKFAST HILL RD GRAVEL PT

Well located at ..... in ..... County, State of .....

Date Drilling started MAY. 17-78 Date Test Hole Completed MAY 22-78

Total depth to bottom of Well 72' Diameter Test Hole 2½

Water stands when not pumping ..... feet 9" ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	24'	HARD PAN
24'	42'	FINE BROWN SAND CLAY
42	56'	FINE & COARSE BROWN SAND
56'	72'	SHARP GRAVEL CLAY
		H.T LEDGE 72'

Did Well Clear Up? YES

How Long? 1 Hr

Time Pumped? 3 Hrs

Drawdown 9 Ft. 1 In.

Capacity 50 GPM

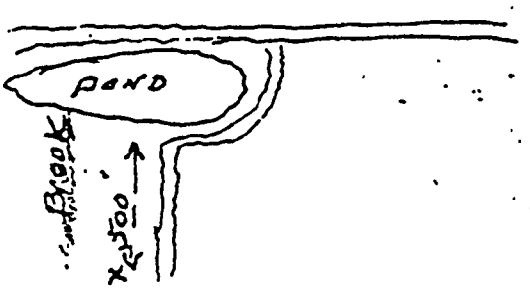
Time Required for Recovery?

Was Well Pulled? BACK TO 55'

Observation YES What Depth? 55'

Was Observation Well Pulled? NO

Map of Location



Remarks and opinion of Test SET DOUBLE 40 SLOT SCREEN IN TEST WELL AND OB WELL,

Driller C KELLY

Helper T PELEZAR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH Test No. 8C

Address BREAKFAST HILL RD GRAVEL PIT

Well located at ..... in ..... County, State of .....

Date Drilling started JUNE 2-78 Date Test Hole Completed JUNE 5-78

Total depth to bottom of Well 39' Diameter Test Hole 2" "

Water stands when not pumping 2' ABOVE GROUND feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	28'	Clay
28'	31	SHARP GRAVEL
		Clay
31'	39'	SHARP GRAVEL
		FINE BROWN SAND
		LEDGE 39'

Did Well Clear Up? YES

How Long? 1 HR

Time Pumped? 2 HR'S

Drawdown Ft. In.

Capacity 12 GPM 10" VAC

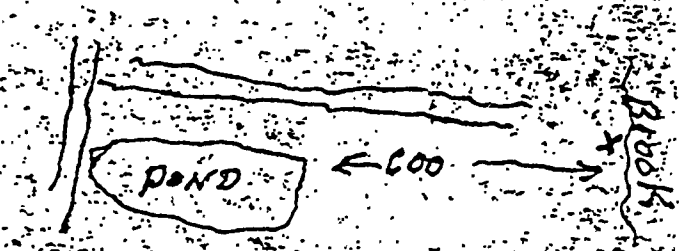
Time Required for Recovery? —

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test SET 40 SLOT SCREEN AT 38'

Driller C KELLY

Helper T PELCZAR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Portsmouth Test No. 85

Address OFF RT 151 BACK OF POST OFFICE

Well located at ..... in ..... County, State of .....

Date Drilling started JUNE 6-28 Date Test Hole Completed JUNE 6-28

Total depth to bottom of Well 35 Diameter Test Hole 2½"

Water stands when not pumping 1' feet 3" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	18	CLAY
18	35	SHARP GRAVEL CLAY
		LEDGE 35'

Did Well Clear Up? —

How Long? —

Time Pumped? —

Drawdown —Ft. In.

Capacity

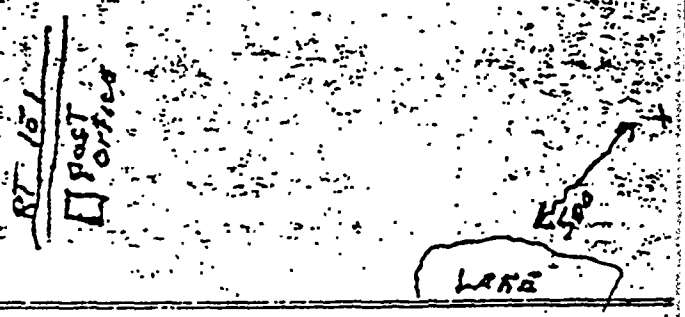
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test .....

Driller C KELLY

Helper T PELLEAR

Study

NED - Fiss

Fissrdog

Byrne 112

STEVEN L. DEAN
Consultant Geologist
Box 487
Parishville, N.Y.
13672

May 15, 1977

Mr. Joseph Murphy
Whitman & Howard, Inc.
45 Williams St.
Wellesley, Massachusetts
02181

Dear Mr. Murphy:

Seismic investigations for the purpose of locating new municipal water sites for the City of Portsmouth, New Hampshire were completed on April 25, 1977.

This report is a complete presentation of my findings. I would be pleased to discuss this report with you at your convenience.

Sincerely yours,

Steven L. Dean

impermeable to transmit large water quantities. It should be noted that the velocity of this second layer appears to be lower at the "B" end of this traverse and if further test well investigation occurs at this site it should be in the vicinity of this end of the traverse.

Site number 3 is located in the Town of Greenland approximately 1,500 feet west of the intersection of Breakfast Hill Road and U.S. Route #1. At this site about 8 to 11 feet of dry sands and gravels overlie a layer of saturated material which extends to bedrock at a depth of 61 feet at A and 33 feet at B. This second layer has a seismic velocity of 5900 feet per second which is indicative of a sand-silt-gravel mixture which most likely is too impermeable to warrent further investigation.

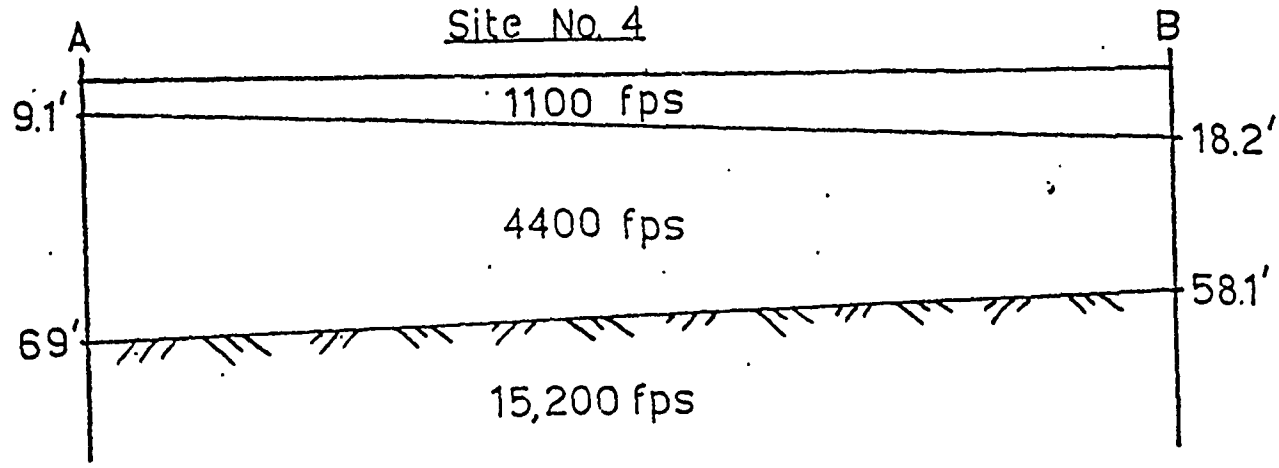
Site number 4 is located at the edge of a corn field approximately 2,300 feet south-southwest of the intersection of Breakfast Hill Road and State Route #151 in the Town of Greenland. At this site a layer of loose dry sand extends to a depth of 9 feet at A and 18 feet at B. Beneath this a layer of what appears to be saturated sands and gravels extends to bedrock at depths of approximately 69 feet at A and 58 feet at B. This second layer appears to have a seismic velocity which would indicate sufficient permeability to warrent further investigation by test wells. Though there appears to be a number of buried boulders in the vicinity of point A, this end had the lower and therefore more favorable velocities, thus any test well at this location should be situated near point A.

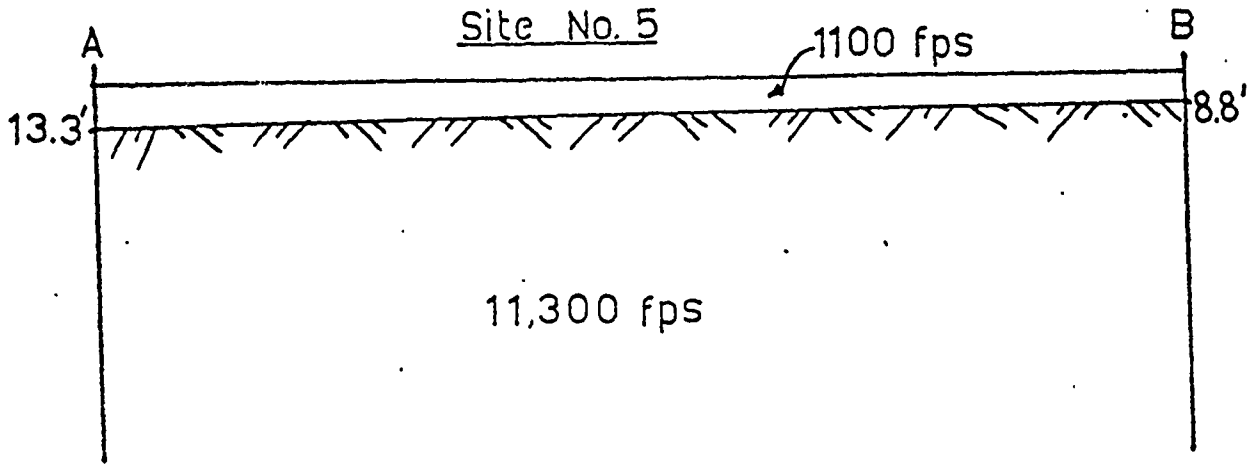
Site number 5 is located in the Town of Greenland approximately 1000 feet north of the point when the State Route #151 crosses Norton Brook. At this location a layer of dry, unconsolidated material extends to a depth of between 9 and 13 feet. Beneath this, a single layer of material with a velocity of 11,300 feet per second extends to a depth of at least 100 feet. This material is either an extremely compacted till or bedrock. Either option is

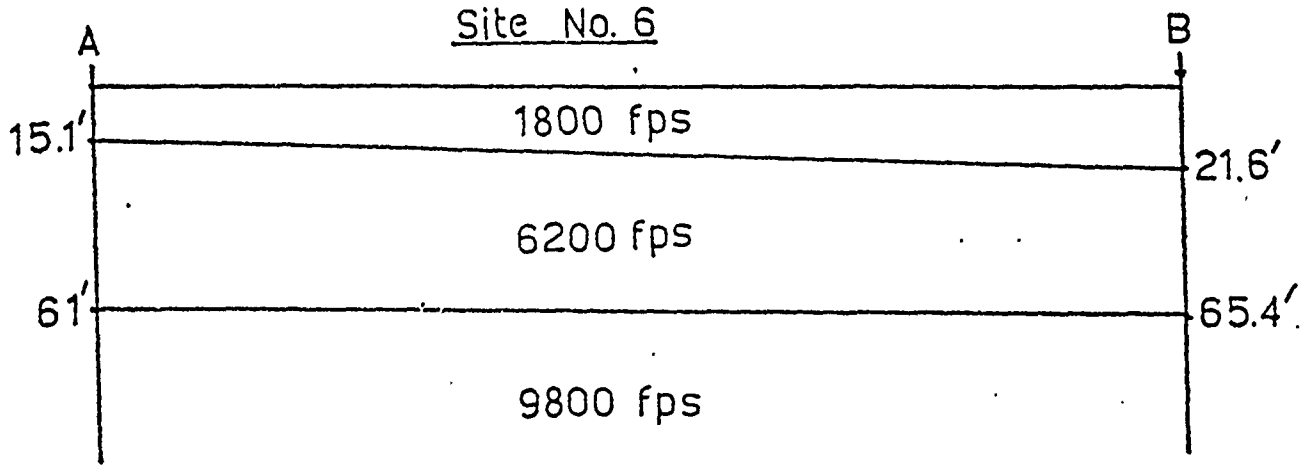
Site number 20 is located about 200 feet southwest of site number 12 at the intersection of Packers Falls Road and Wednesday Road in the Town of Durham. This traverse was conducted because it was found that traverse number 12 ran directly over a buried water main and it was uncertain what effect this would have on the readings. After analysis it was found that the two profiles compared quite favorably. At site number 20 an overlying layer of dry material was found to extend to approximately 8 to 10 feet. Below this, a second layer extended to bedrock at depths of about 62 feet and 31 feet at points A and B respectively. This second layer has a velocity of 4,600 feet per second which is slightly less than the optimum velocity range, possibly indicating insufficient saturation. However, the depth of the material at this location would seem to warrent a test well to further investigate this site.

Site number 21 is located approximately 300 feet north of the City of Portsmouth's Greenland well off State Route #151. At this location there appears to be three distinct layers of unconsolidated material overlying bedrock. The first layer of dry sands extends to a depth of 3 to 6 feet where a second, slightly denser layer is encountered with a seismic velocity of 2,450 feet per second which is usually indicative of dry, loose, sands or gravels. This second layer extends to a depth of 11 feet and 31 feet at points A and B respectively. From these depths down to bedrock at approximately 70 feet there is a third layer which has a velocity of about 5,900 feet per second. This is usually indicative of a silt-sand-clay mixture which would be too impermeable for large water wells.

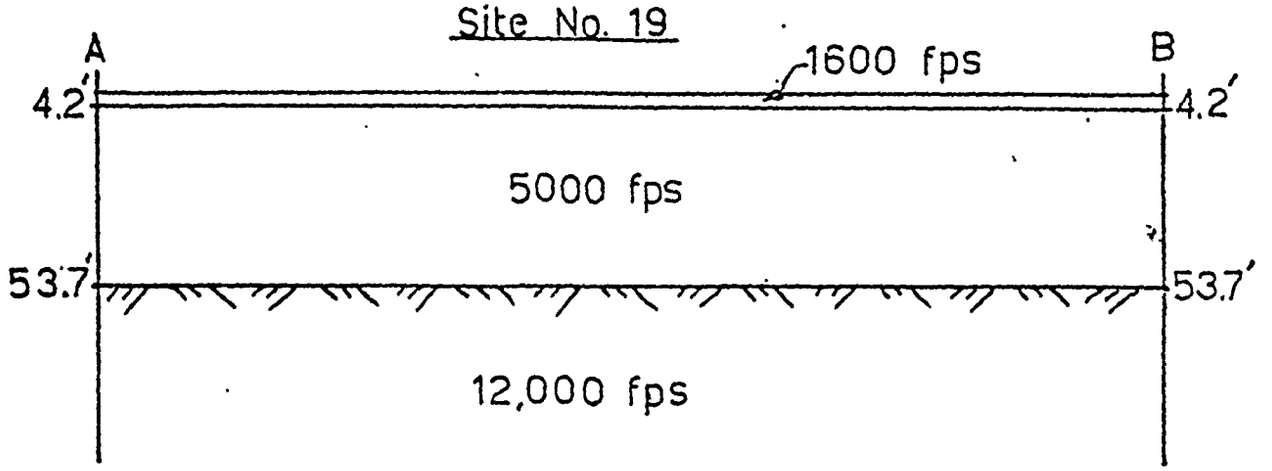
Site number 22 is located about 350 feet north of site number 21. The same three unconsolidated layers appeared in this traverse as was found in traverse number 21. The major difference was that the second layer was somewhat thicker (35-50 feet) and the third layer was


Site No. 4
A
B
1100 fps
9.1'
18.2'
4400 fps
58.1'
69'
15,200 fps

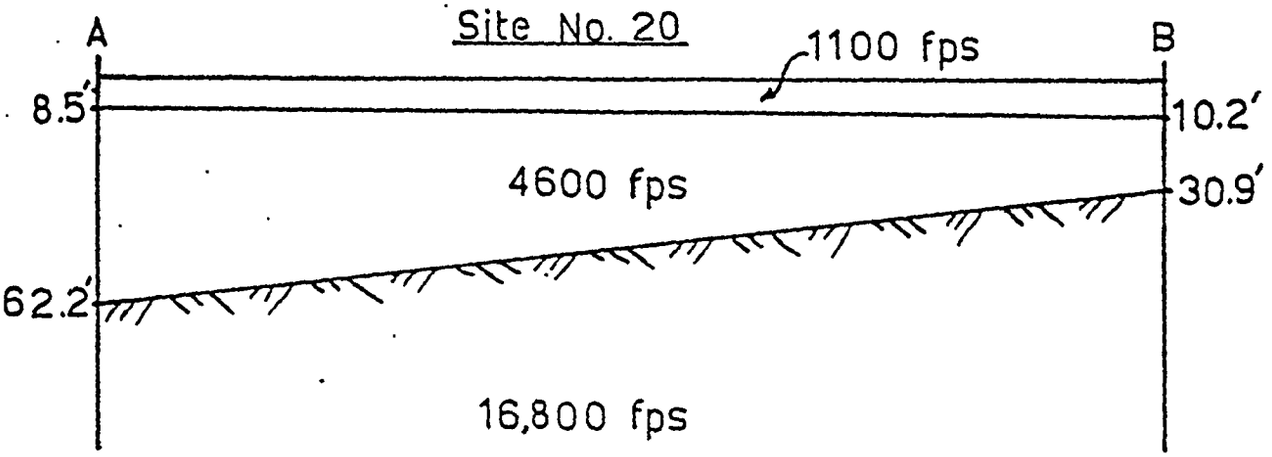

Site No. 5
A
1100 fps
B
13.3'
8.8'
11,300 fps


Site No. 6
A
B
1800 fps
15.1'
21.6'
6200 fps
61'
65.4'
9800 fps

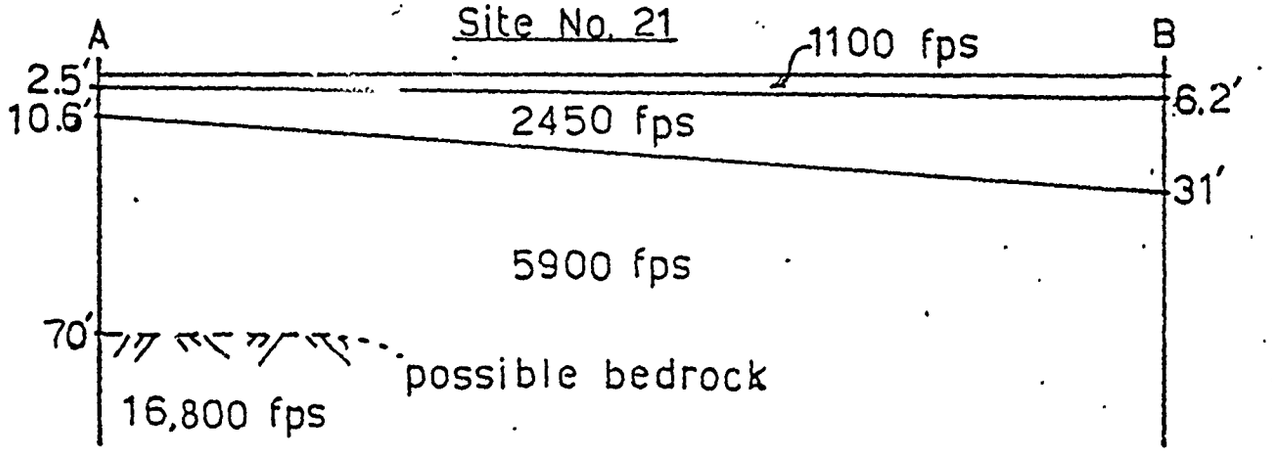
Site No. 19

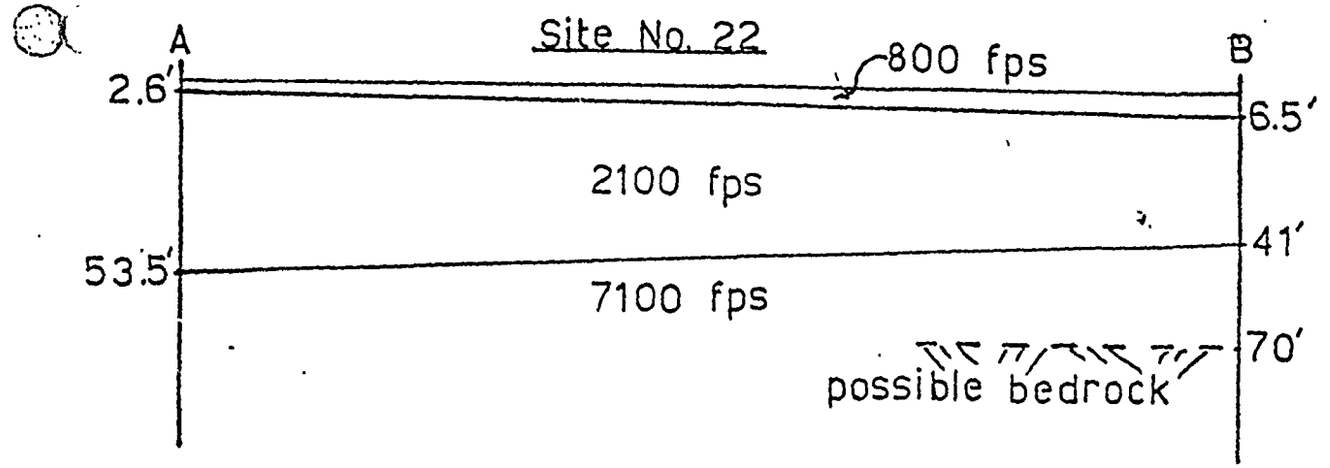


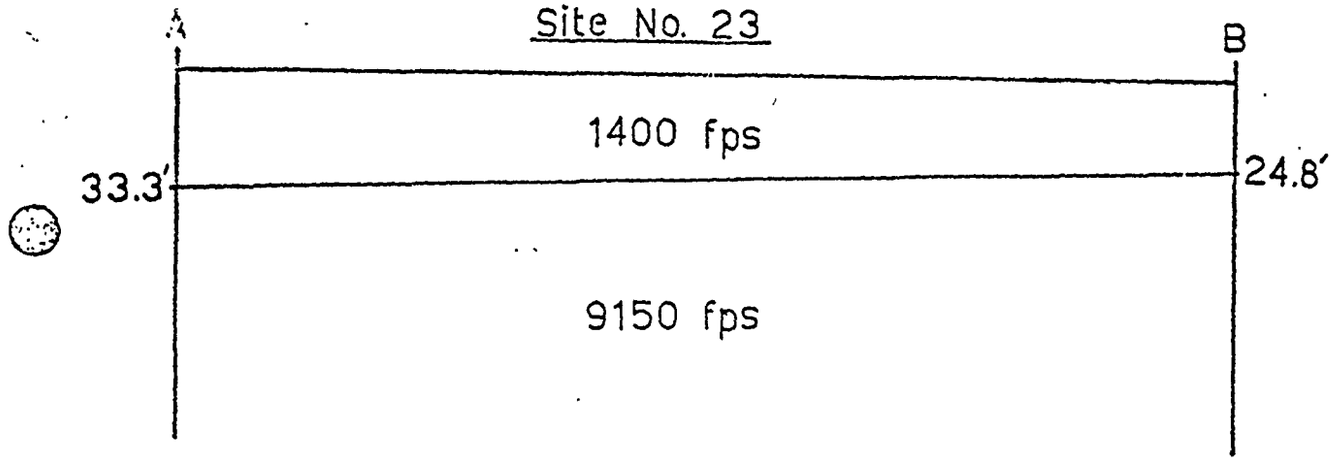
Site No. 20

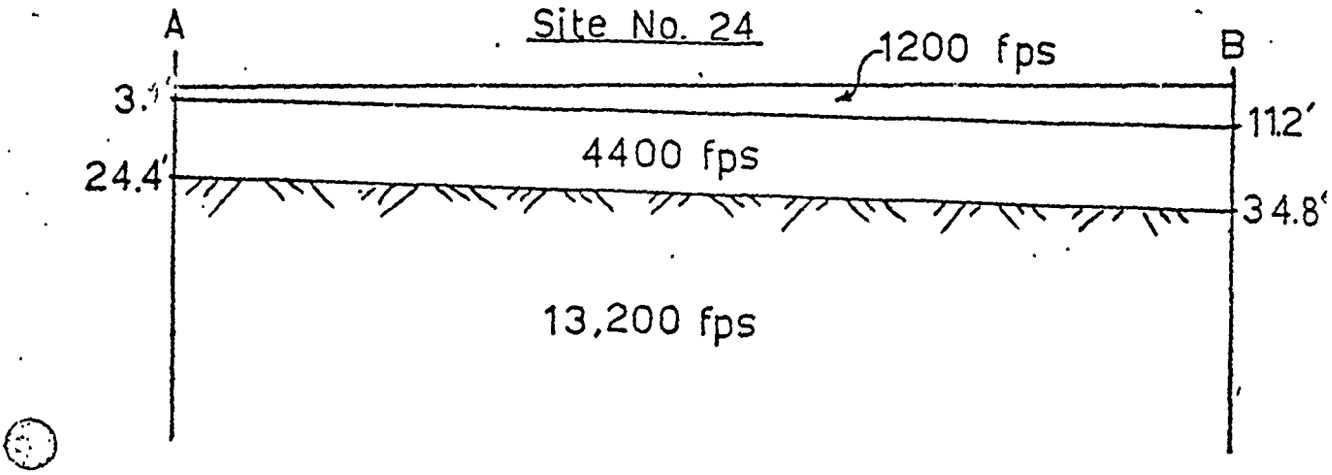


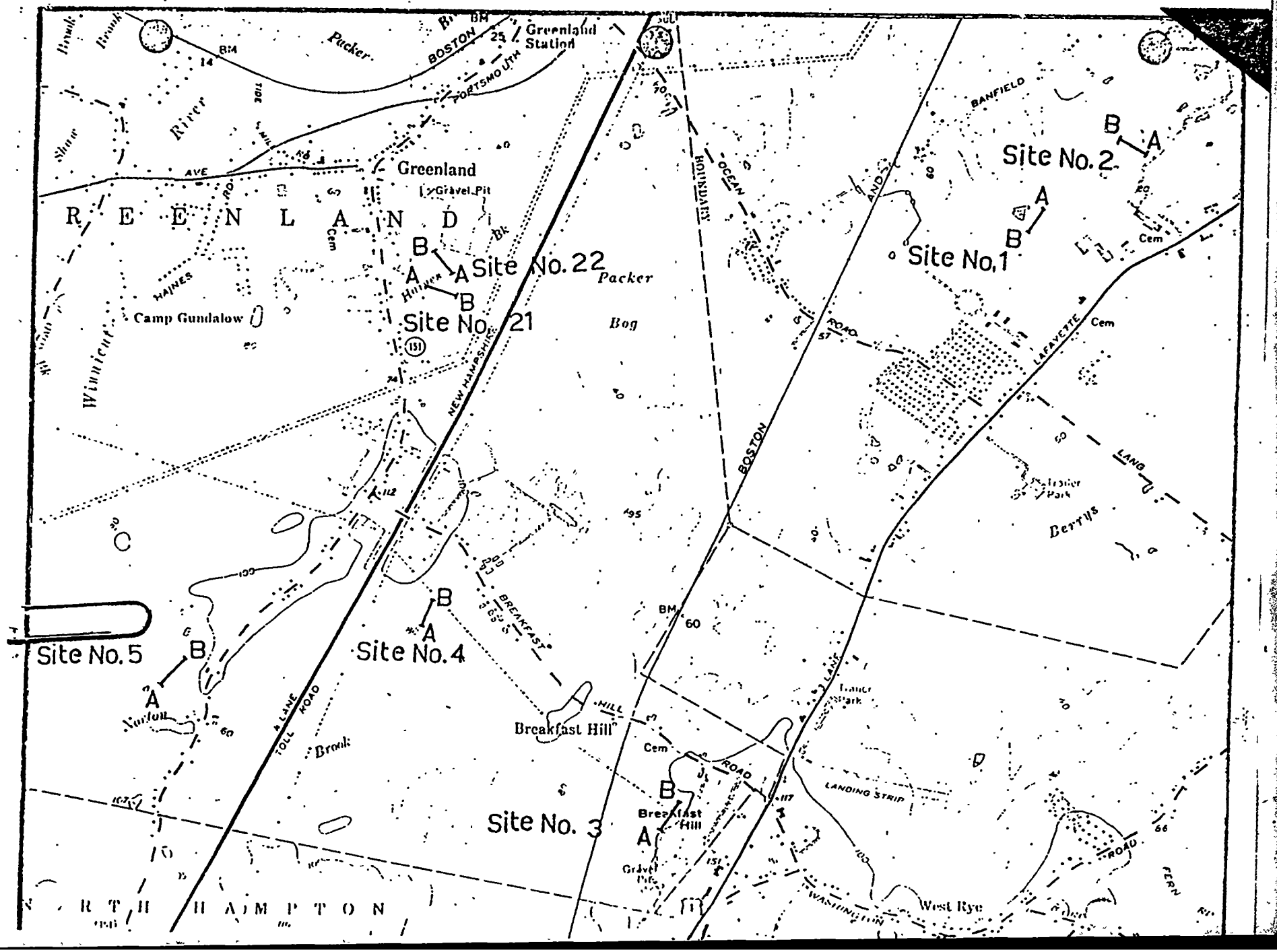
Site No. 21




A
Site No. 22
800 fps
B
2.6'
6.5'
2100 fps
53.5'
41'
7100 fps
70'
possible bedrock


A
Site No. 23
B
1400 fps
33.3'
24.8'
9150 fps


A
Site No. 24
1200 fps
B
3.1'
11.2'
4400 fps
24.4'
34.8'
13,200 fps


Site No. 1
Site No. 2
Site No. 21
Site No. 22
Site No. 3
Site No. 4
Site No. 5
Greenland
Greenland Station
Greenland Gravel Pit
Camp Gundalow
Packer Bog
Breakfast Hill
Breakfast Hill Cem
Boston
Portsmouth
New Hampshire
Ocean Boundary
Lafayette Cem
Landing Strip
Toll Road
Lane
Road
Brook
River
Cem
Bk
Hill
Ave
Banfield
Berrys
Fern
Washington
West Rye
N O R T H H A M P T O N

HAMPTON

HA-1

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton, N. H. Test No. 8

Address

Well located at Off Rte. 1A near Center in County, State of Mass.

Date Drilling started Jan. 26, 1956 Date Test Hole Completed Jan. 27, 1956

Total depth to bottom of Well 71'6" Diameter Test Hole 8-1/2"

Water stands when not pumping 1 feet 10 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	20'0"	Clay & sand
20'0"	66'8"	Clay-some fine sand
66'8"	71'6"	Sharp gravel & clay

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

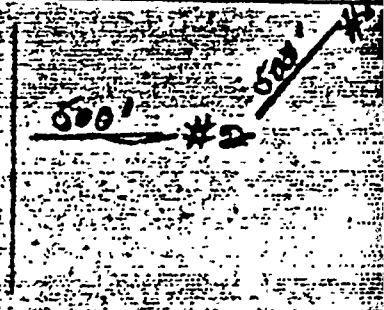
Time Required for Recovery?

Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller J. Nelson Doherty

Helper W. Courtney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Co. Test No. 7

Address Mill Road Location

Well located at ____ in ____ County, State of ____

Date Drilling started Feb. 29, 1956 Date Test Hole Completed March 5, 1956

Total depth to bottom of Well 60 feet Diameter Test Hole 2-1/2"

Water stands when not pumping 2 feet 1 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	18'0"	Top soil clay &
		stones
18'0"	45'0"	Coarse to medium
		sand & some gravel
45'0"	56'0"	Fine to coarse sand
56'0"	60'0"	Hardpan

Did Well Clear Up? Yes

How Long? Few minutes

Time Pumped? #7 - two hours
#7085 - two hours

Drawdown Ft. ____ In. 8½"

Capacity 60 G. P. M.

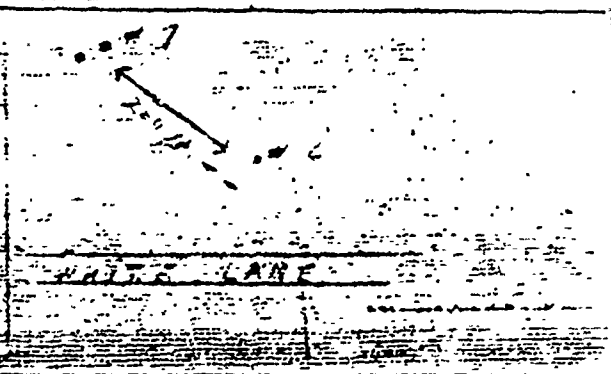
Time Required for Recovery?

Was Well Pulled? No

Observation Yes What Depth? 44'11"

Was Observation Well Pulled? No

Map of Location



Remarks and opinion of Test Looks good at 44'9". Will pump some to 56 feet. Set new Cook Screen at 55 ft.

Driller M. Poley

Helper W. Courtney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Co. Test No. 8

Address Mill Road Location

Well located at ..... in ..... County, State of Mass.

Date Drilling started March 5, 1956 Date Test Hole Completed .....

Total depth to bottom of Well 62'0" Diameter Test Hole 2-1/2"

Water stands when not pumping ..... feet 4 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	9'0"	Mud & Silt
9'0"	22'0"	Fine sand, clay & some gravel
22'0"	33'0"	Fine to med. sand & some gravel
33'0"	57'0"	Fine sand
57'0"	59'0"	Sand, gravel & some clay
59'0"	62'0"	Hard pan

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

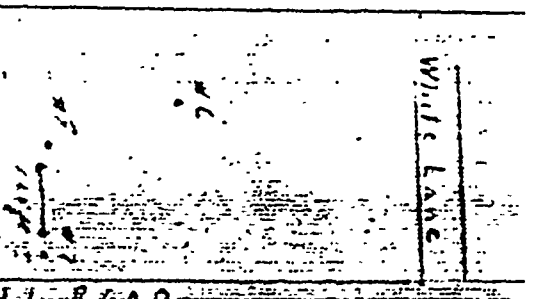
Time Required for Recovery?

Was Well Pulled? No

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test No Good

Driller M. Foley

Helper W. Courtney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Co Test No. #22

Address

Well located at Hampton in County, State of New Hampshire

Date Drilling started Nov 9, 1940 Date Test Hole Completed 2 1/2"

Total depth to bottom of Well 51' 6" Diameter Test Hole

Water stands when not pumping feet 8" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	6'0"	peat
6'0"	28'0"	gray fine sand & clay 28'0" Clayey sand, some clay gravel, would not pump all the way through

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

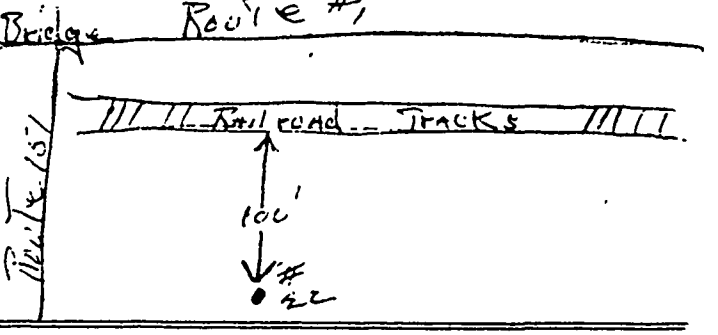
Time Required for Recovery?

War Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. J. Murphy

Helpers D. M. Murphy

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Works Company Test No. 23

Address

Well located at Hampton, in County, State of New Hampshire

Date Drilling started Nov. 14, 1960 Date Test Hole Completed Nov. 14, 1960

Total depth to bottom of Well 21'0" Diameter Test Hole 2-1/2"

Water stands when not pumping feet 5" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	21'0"	Fine gray sand and clay, would not pump.

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

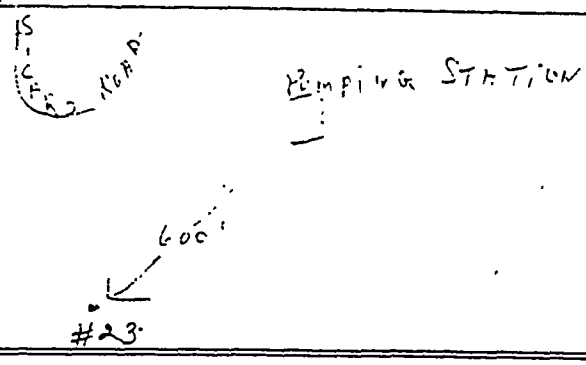
Time Required for Recovery?

Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Murphy

Helpers D. Murphy

D. L. MAHER CO.
LOG OF TEST WELL

Log of Well for Hampton N.H. Test No. #15

Address

Well located at Hampton in County, State of

Date Drilling started May 12-61 Date Test Hole Completed May 12-61

Total depth to bottom of Well 7 ft. Diameter Test Hole 4"

Water stands when not pumping feet inches from the surface of the ground

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	7'	Hard pan
7'		Ledge.

Did Well Clean Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

Time Required for Recovery?

Was Well Pulled? Yes.

Observation Well Depth?

Was Observation Well Pulled?

Map of Location

SWAMP.

LEAVITTS LAND

ROAD

WOODLAND RD

Remarks and opinion of Test

Driller P. KELLY

Helpers R. Gross

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hopkinton Water Works Test No. 5 Site #4

Address

Well located at Mrs. Berry's Farm Hopkinton Town in County, State of R.I.

Date Drilling started 8/7/62 Date Test Hole Completed 8/7/62

Total depth to bottom of Well 49'6" Diameter Test Hole 2½"

Water stands when not pumping 16' feet 3" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
20'	20'	Fine brown sand little large gravel & clay pumpkin slate
5'	25'	fine brown sand clay fine gravel
11'	36'	fine brown sand clay coming to small gravel at 35' gravel
6'	42'-6"	fine brown sand clay coming to a hard at 42'
		Tight on drill stuck during drilling fell off
		Bowing at 49'6"
		Called it will

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

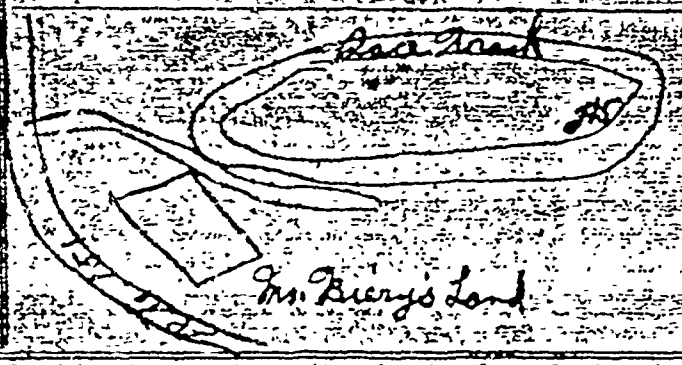
Time Required for Recovery?

Was Well Pulled? Yes

Observation Well? What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller Charles Mackey

Helper Wm. Money

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Co. Test No. 9-08 Well #3

Address

Well located at Gray Tank Rd. & U.S. 1 in County, State of Volusia, Fla.

Date Drilling started 8/24/62 Date Test Hole Completed 8/28/62

Total depth to bottom of Well 12' and 17' Diameter Test Hole 2"

Water stands when not pumping ..... feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#1	9 Feet	Hole
Muck at	12'	pulled out
Sand and gravel	17'	
#2	9 Feet	Hole
Muck at 12' well		
Sand at 17' Pulled out		
well installed without		

Did Well Clear Up? Clear at bottom

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

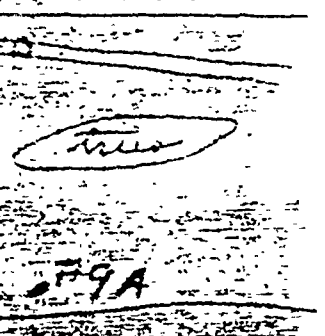
Time Required for Recovery?

Was Well Pulled? No

Observation Well? What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller Charles Mooney

Helper Tom Mooney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Co. Test No. Well #3

Address

Well located at Bayou Ln. & Hwy in County, State of N.H.

Date Drilling started 5/27/62 Date Test Hole Completed 5/28/62

Total depth to bottom of Well 60' Diameter Test Hole 8 1/2"

Water stands when not pumping 5' feet 1" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
22'	22'	Sand & Gravel
		& Gravel packed
		clay & Gravel
		Clay & Stone
		Clay & Stone
36'	58'	Sand & Gravel
		Sand & Gravel
		Sand & Gravel
		Sand
		Bottom 60'

Did Well Clear Up? Did not flush

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

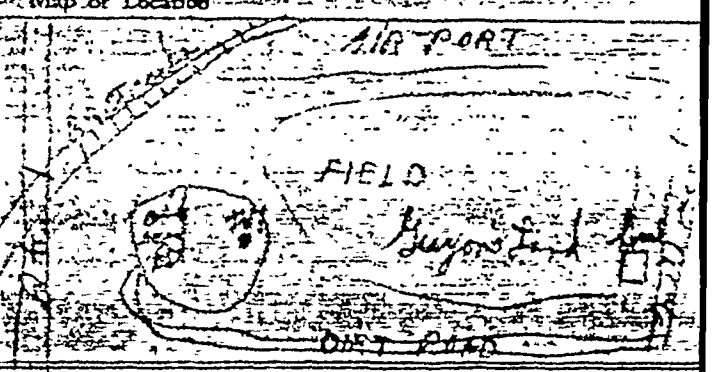
Time Required for Recovery?

Was Well Pulled? No

Observation? No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and Opinion of Test

Driller Charles Mackey

Helper Mr. Gurney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Co. Test No. 19-10-6

Address

Well located at Hampton (Garfield) in County, State of N.H.

Date Drilling started 8/22/62 Date Test Hole Completed 9/6/62

Total depth to bottom of Well 63' Diameter Test Hole 2 1/2"

Water stands when not pumping 1 feet 1" inches from the surface of the ground

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
17'	17'	Peat and Sand
5'	22'	Clay and Gravel Mixed
10'	32'	Sand and Gravel with Clay
10'	42'	Sand and Gravel
		Sand and Clay
		Packed Sand
5'	47'	Fine Sand and Gravel
		Fine Sand and Clay
5'	52'	Fine Sand
		Sand and Clay
		Packed Sand
		Fine Sand and Clay
Bottom 11'		Sand and Fine Gravel
		Fine Sand and Clay
		Sand and Fine Gravel
		Fine Sand and Clay
		Sand and Fine Gravel
		Fine Sand and Clay
		Sand and Fine Gravel

Did Well Clear Up? Yes

How Long? 15 minutes

Time Pumped? 1 hour test

Drawdown 2' Ft. 6" In.

Capacity 25 G.P.M.

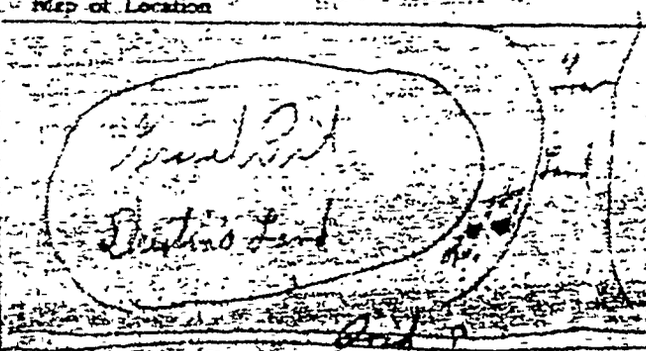
Time Required for Recovery? 1 minute

Was Well Pulled? No

Observation? Yes What Depth? 52'

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Driller

Driller Clyde Pierce

Helper McMurray

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Co. Test No. 20 & 28

Address

Well located at [illegible] in County, State of [illegible]

Date Drilling started 8/31/62 Date Test Hole Completed 9/1/62

Total depth to bottom of Well 9-2" & 58-4" Diameter Test Hole 7 7/8"

Water stands when not pumping 1' feet 1" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for American Water Work's .... Test No. #11-65

Address Hampton

Well located at off Heather, lane in Hampton. County, State of New Hamshire

Date Drilling started 6/28/65 Date Test Hole Completed 6/28/65

Total depth to bottom of Well 29' 9" Diameter Test Hole 2½

Water stands when not pumping 12' feet 4" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	20'	Blue clay +
		sharp gravel
20	26'	Blue clay
		fine silty sand
		some gravel

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

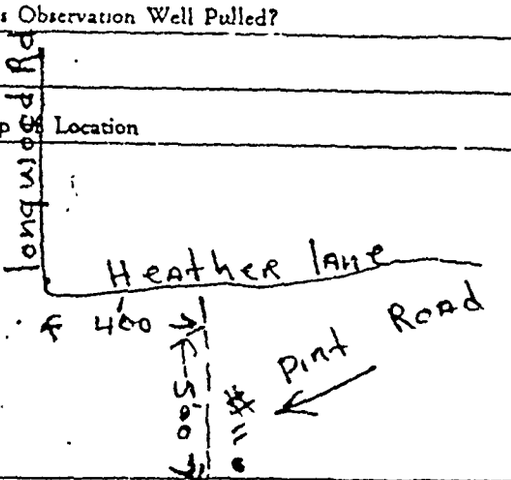
Time Required for Recovery?

Was Well Pulled? yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller M. Mooney

Helpers W. Palmer

HAMPTON

HA-2

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Works Test No. 12 Lot Little 1

Address

Well located on Long's Land off Locke Rd. in County, State of N.H.

Date Drilling started 8/8/62 Date Test Hole Completed 8/13/62

Total depth to bottom of Well 49' Diameter Test Hole 2½"

Water stands when not pumping 9' feet 6" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
20'	20'	Fine brown sand
		large stones and
		clay & pebbles little
26'-6"	46'-6"	Fine brown sand
		and clay over gravel
		Compact gravel
		clay at 47'
		Bowlder at 49'
		Solid rock

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

Time Required for Recovery?

Was Well Pulled?

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller Charles Mackey

Helper M. Mooney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Wenham Water Works Test No 14 Alt Site #1

Address

Well located at Essex & Lowell Lake Rd in County, State of Mass.

Date Drilling started 8/10/62 Date Test Hole Completed 8/13/62

Total depth to bottom of Well 64'-6" Diameter Test Hole 2½"

Water stands when not pumping 12' feet 11" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
20'	20'	Red sandy soil & gravel
		with a few small stones
34'	54'	Brown gravel and clay
		mixed
10'6"	64'-6"	Fine gravel and
		clay with large
		gravel & sand
		Bottom at 64'-6"

Did Well Clear Up? Yes at first pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

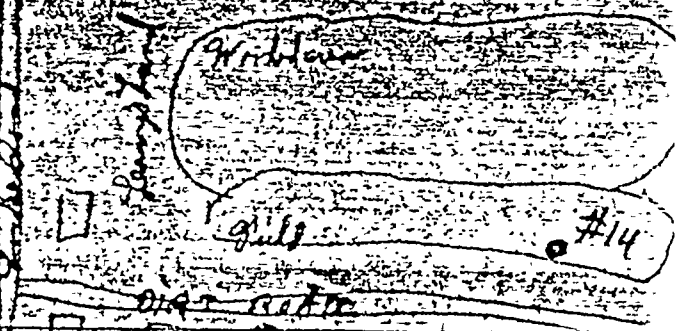
Time Required for Recovery?

Was Well Pulled? Yes

Observation None What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and Opinion of Test

Driller Charles Mackey

Helper M. Mooney

D. E. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Works Test No. 16 Lot 1

Address

Well located at Hampton Golf Course Road in County, State of N.H.

Date Drilling started 8/14/62 Date Test Hole Completed 8/15/62

Total depth to bottom of Well 58'-6" Diameter Test Hole 2½"

Water stands when not pumping 8' 4" feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
20'	20'	Light brown sand
		some gravel and silt
		Clay, Blue,
31'	51'	Light brown sand
		and silt to clay mixed
7'-6"	58'-6"	fine gray sand with
		some silt and
		gravel, tight
		Bottom of Test 58'-6"

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

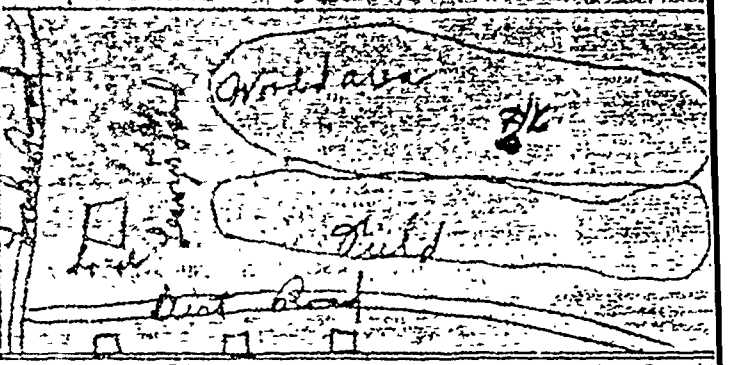
Time Required for Recovery?

Was Well Pulled? No

Observation None What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test Hauser

Driller Charles Mackey

Helper M. Mooney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Livingston Pipe Test No. # 20

Address

Well located at Livingston m County, State of

Date Drilling started May 15-61 Date Test Hole Completed May 15-61

Total depth to bottom of Well 18'6. Diameter Test Hole 2 ½"

Water stands when not pumping ... feet ... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	18'6	Hard pan
18'6"		Ledge

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

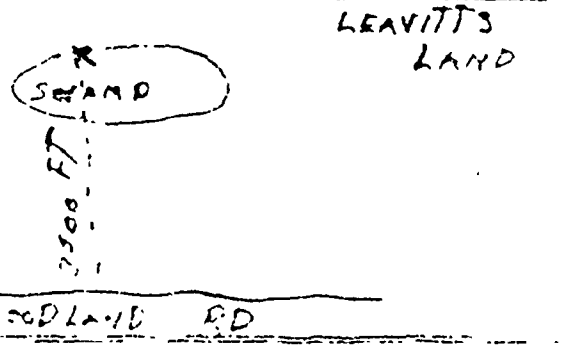
Time Required for Recovery?

Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C KELLY

Helper R GOULD

D. L. MAHER CO.

Send Copy To Symmes

38a BRATTLE STREET
CAMBRIDGE, MASS.

DRILLER'S REPORT

Ryder Well

Contract Hampton Water Co. WELL NO. 1

City Hampton County State N. H.

Formation	Sketch of Setting	Remarks
0-2' Mud		
2-15' Sandy Gravel		
15-35' Coarse Sand & a little gravel		
35-42'9" Coarse Gravel		

MATERIAL SET

Blank Pipe 31' of 24" Transite

Screen 10' of 24" Transite
5' of 24" Stainless steel

Cone

Amount Gravel Used About 24 tons

Date work started 4-16-30 Date Pumped

On sketch show

(1) Parts rotates or bailed -

(2) Joints whether screwed, welded or riveted

(3) Depth of pump pit

(4) Kind of seals 10' of concrete between 36 casing & 60" casing

(5) Distance from surface to each section of well

(6) Depth of well after plugging

Did Well clear up? How soon?

How long agitated?

How long pumped?

PRELIMINARY TEST DATA

Static Level 1'0" Date

Capacity GPM with Pumping Level of

J. M. Foley
Driller

SCALE 3/4" = 1 FT

HUDSON

HU-1

R. E. CHAPMAN CO.

OAKDALE, MASSACHUSETTS

Tel. West Boylston 7 [illegible] — 8-3231

1C

1+1C Tannic well

Job Location Hathaway, Mass.

Date 12/12/62 Hole No. #7

Started 125 ft West of Hole 1263 Finished

LOG OF HOLE

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of Min. Drive in Inches	Penetration Per 6 Inches
0'	16'	Compact brown sand gravel & boulders		
16'	34'	Lt. brown sandy gravel		
34'	47'	Fine to med. brown sand & gravel.		
47'	59'	Compact gray sand & gravel Hydrous Ox.		
		Refusal at 59 ft.		

Used 59 ft — inches of casing

Well rated at 45 G.P.M. 90" Vacuum

Water level is 6'-10" ft. below ground level

Remarks Set 6 ft of 30 slot screen from 36 to 44.

Casing & screen left in.

Foreman R. R. Ward

R. E. CHAPMAN CO.
OAKDALE, MASSACHUSETTS
DIAL 835-3727 — 835-3221

Job Location Hudson Water Co Hudson N.H.
Date Sept 18, 1972 Hole No. 72
Started ..... Finished .....
100' off Valley rd LOG OF HOLE in woods.

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in Inches
0"	20'	Brown sand to coarse gravel		
20'	27'	Brown; gray sand to coarse gravel		
27'	39'	Gray silty sand to angular coarse gravel		
		Refusal at	39'	

Used 21 ft. ..... inches of casing
Well rated at 70 G.P.M. 15 " Vacuum
Water level is 4'-1" ft. below ground level
Remarks Set 10' of 60 slot screen from 39'-29'. 3 gpm @ 28" Vac. Reset screen from 27'-19' IRON 3.5 odor. Left in
Foreman George Amore

R. E. CHAPMAN CO.
OAKDALE, MASSACHUSETTS
DIAL 835-3727 — 835-3221

Job Location Hudson Water Co Hudson NH
Date Sept 18, 1972 Hole No. 73
Started ..... Finished .....
off Highland St. LOG OF HOLE behind house.

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in Inches
0"	2'	Peat; muck		
2'	8'	Brown sand; gravel		
8'	28'	Gray sand; gravel		
28'	57'	Gray silt; clay		
		Refusal at	57'	

Used ..... ft. ..... inches of casing
Well rated at 60 G.P.M. 21 " Vacuum
Water level is 3'-0" ft. below ground level
Remarks Set 10' of 60 slot screen from 38'-19' IRON 3.5 P.P.M.
Pulled out
Foreman George Amore

R. E. CHAPMAN CO.

OAKDALE, MASSACHUSETTS

DIAL 835-3727 — 835-3221

Job Location Hudson Water Co Hudson, NH

Date 6/8/66 Hole No. 25

Started ..... Finished .....

LOG OF HOLE

Depth From Ground Surface	Depth To	175' off Pole #13 of CLASSIFICATION of MATERIALS Power line	No. of 30" blows on spoon	Penetration of Spoon in Inches
0	8'	Peat		
8'	21'	Red sand & silt		
21'	27'6"	Brown fine sand & silt		
		Trace of yellow clay		
		Refusal 27'6"		

Used ..... ft. ..... inches of casing

Well rated at ..... G.P.M. ..... " Vacuum

Water level is 1'3" ft. below ground level

Remarks No circulation

Pulled

Foreman F Kinne

R. E. CHAPMAN CO.

OAKDALE, MASSACHUSETTS

DIAL 835-3727 — 835-3221

Job Location Hudson Water Co Hudson, NH

Date 6/9/66 Hole No. 26

Started ..... Finished .....

LOG OF HOLE

Depth From Ground Surface	Depth To	150'N + 110'E of Pole #13 of CLASSIFICATION of MATERIALS of Power line	No. of 30" blows on spoon	Penetration of Spoon in Inches
0	13'	Peat		
13'	33'	Brown sand & silt		
33'	36	Clay		
36	39	Sand & brown sand		
		Refusal 29'		

Used ..... ft. ..... inches of casing

Well rated at ..... G.P.M. ..... " Vacuum

Water level is ..... ft. below ground level

Remarks No circulation

Pulled

Foreman F Kinne

Log of Test holes 1960-71

elev.	location	date and hole #	log	water table	remarks
235'	730' SE of #9 7/17/64	7/21/64 #14	0-2 loam 2-15 fine yellow sand 15-28 fine yellow sand, sharp gravel & clay 28-30 hard pan	— Barrett Hill	no circulation
230'	940' SE of #9 7/17/64	7/22/64 #15 & #20 7/27/64	0-2 loam 2-14' Fine yellow sand & sharp gravel 14-20 " " " & traces of clay 20-33 " tan yellow sand w/ sharp gravel 33-36 Hard pan	8'4" Barrett Hill	50 gpm at 17"
220'	750' SSE of #9 7/17/64	7/22/64 #16	0-2 loam 2-21 fine to med yellow sand and gravel 21-34 fine yellow sand and sharp gravel 34-44 " " " w/ clay traces 44-46 hard pan	3' Barrett Hill	40 gpm at 18"
200'	150' west of #16 7/22/64 in field	7/23/64 #17	0-2 loam 2-20 fine yellow sand and sharp gravel 20-36 compact med brown sand and gravel 36-39 Hard pan	2'7" Barrett Hill	10 gpm at 25"
210'	btw holes #16 & #17 7/22-23/64 in field	7/23/64 #18	0-2 loam 2-11 fine to med yellow sand 11-34 compact yellow sand and sharp gravel 34-43 hard yellow clay & sharp gravel	2'9" Barrett Hill	10 gpm at 20"
200'	275' NW of #16 7/22/64	7/24/64 #19	0-2 loam 2-14' fine yellow sand & sharp gravel 14-[illegible] " " " " " and clay	2'6" Barrett Hill	45 gpm at 25"
220	50' S of #16 7/22/64 in field	7/27/64 #21 & #22 7/28/64	0-2 loam 2-7 compact yellow sand and gravel, boulders 7-35 fine to med yellow sand and gravel. 35-37 hard pan	3' Barrett Hill	45 gpm at 15"
200'	400 ft. SW of #21 7/27/64	#25 & 26 7/29/64 7/30/64	0-2 loam 2-7 compact yellow sand & gravel 7-34 fine to med yellow sand & gravel 34-38 compact yellow sand and gravel	2'10" Barrett Hill	65 gpm at 16"
200'	200 ft. West of #21 & 22 7/27/64	7/30-31/64 #27	0-9 compact yellow sand, sharp gravel, boulders 9-37 yellow sand, sharp gravel 37	3'7" Barrett Hill	45 gpm at 17"

R. E. CHAPMAN CO.
OAKDALE, MASSACHUSETTS
DIAL 835-3727 — 835-3221

Job Location Hudson Water Co. Hudson N.H.

Date January 23, 1975 Hole No. 1 (75)

Started ..... Finished .....

N. Highland Street LOG OF HOLE in swamp.

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in inches
0"	25'	Peat		
25'	30'	Grey sand & small gravel		
30'	50'	Brown sand & gravel		
50'	52'	Fine brown sand & gravel.		
		Refusal at	52'	

Used 42' ft. ..... inches of casing

Well rated at 60 G.P.M. 15 " Vacuum

Water level is 7' ft. below ground level

Remarks Set 10' of 60 slot screen from 52'-42'

IRON OX Mag. OX

Left in

Foreman Gene Devine

R. E. CHAPMAN CO.
OAKDALE, MASSACHUSETTS
DIAL 835-3727 — 835-3221

Job Location Hudson Water Co. Hudson N.H.

Date January 23, 1975 Hole No. 2 (75)

Started ..... Finished .....

2' off # 1 (75) LOG OF HOLE

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in inches
0"	25'	Peat		
25'	30'	Grey sand & gravel.		
30'	52'	Brown sand & gravel		
		Refusal at	52'	

Used 42 ft. ..... inches of casing

Well rated at 60 G.P.M. 15 " Vacuum

Water level is 7" ft. below ground level

Remarks Set 10' of 60 slot Screen from 52'-42'

Left in

R. E. CHAPMAN CO.

OAKDALE, MASS.

Name of Driller: William Cummings Names of Helpers: Eddy Clark

Job: Name & Location: Hudson Water Co Howes Hill

Date Started: 1/23/76	Date Finished:
Hole No.: 30" x 24" x 18" Gravel Packed Well	

Depth From	Depth To	Classification of Material
0'	20'	Peat wood + fill
20'	26'	Fine gray sand
26'	36'	Coarse gravel
36'	44'	" "
	44'	Refusal
		26' Concrete seal between 30" and 24"
		18" Screen welded to 18" Casing

Feet of Screen Exposed: 10'-0"

Size of Screen & Slot: 18" Screen 18" Slot

Screen Left in: Yes

Screen Pulled Out:

Pipe Left in: Yes 32' of 24"

Pipe Pulled Out:

Remarks: 32' 24" Left in Hole

Pump Test on Hole No.

Date	Time	Dr. Down	G. P. M.	Static and Other Info.

Date Started:	Date Finished: 2/27/76
Hole No.:	

Depth From	Depth To	Classification of Material

Feet of Screen Exposed:

Size of Screen & Slot:

Screen Left in:

Screen Pulled Out:

Pipe Left in:

Pipe Pulled Out:

Remarks:

Pump Test on Hole No.

Date	Time	Dr. Down	G. P. M.	Static and Other Info.

CONSUMERS WATER COMPANY
PORTLAND, MAINE

BY JH

HUDSON WATER CO

SUBJECT HIGHLAND WELL - LOG

DATE 7/8/65
8/5/65
11/2/65

1/4" = 1'-0"

1" = 4'

DRILLED BY R. E. CHAPMAN
11/7/61

180.32 — PUMP HEAD

180.16 FLOOR

175.16 ℄ DISCH.

173.16 — TOP 36" PIPE

172.58 FLOOR

170

ORIG. GROUND — 169.83

CLAY, TOP SOIL — 166.83 — STATIC W.L. 12/1/61

165.8

O.A. LENGTH OF PUMP 33'
(MOTOR TO BOTTOM)

160

ELEVATION

COARSE W.B. GRAVEL

150.83 — TOP OF PUMP

150

147.8

146.73 — BOTTOM OF PUMP 6/65

145.83 — TOP OF SCREEN

HARD LAYER PACKED GRAVEL

143.7 — BOTTOM OF TAPE

140.83 — BOTTOM OF HOLE

LEDGE

140

R. E. CHAPMAN CO.

OAKDALE, MASS.

Name of Driller RALPH FATEIGER Names of Helpers ED FRISCH

Job: Name & Location HUDSON WATER Co. GREELEY WELL FIELD

Date Started 10-5-1978 Date Finished

Hole No. #2 24X18 G.P.W.

Depth From	Depth To	Classification of Material
0'	10'	MED & COARSE SAND & GRAVEL
10'	20'	MED & COARSE SAND & GRAVEL
20'	25'	MED & COARSE SAND & GRAVEL
25'	30'	COARSE SAND & GRAVEL
30'	35'	COARSE SAND & GRAVEL
35'	40'	MED & COARSE SAND & GRAVEL
40'	44'	MED SAND & GRAVEL

Feet of Screen Exposed: 10'

Size of Screen & Slot: 5' OF 60 SLOT; 5' OF 120 SLOT

Screen Left in: 10'

Screen Pulled Out:

Pipe Left in: 36'3" OF 18"; 20' OF 24"

Pipe Pulled Out:

Remarks: WELL 44' FROM SURFACE LEVEL

Date Started Date Finished

Hole No.

Depth From	Depth To	Classification of Material

Feet of Screen Exposed:

Size of Screen & Slot:

Screen Left in:

Screen Pulled Out:

Pipe Left in:

Pipe Pulled Out:

Remarks:

Pump Test on Hole No.

Date	Time	Dr. Down	G. P. M.	Static and Other Info.
10-19	pump & SURGE		135 G.P.M	WITH 18' D.D.
10-20	pump & SURGE		240 G.P.M	WITH 16' D.D
10-23	pump & SURGE		258 G.P.M	WITH 16' D.D
10-24	pump & SURGE		270 G.P.M	WITH 15' D.D.
10-25	pump & SURGE		275 G.P.M	WITH 14'6 D.D.

Pump Test on Hole No.

Date	Time	Dr Down	G. P. M.	Static and Other Info.

HUDSON

HU-2

R. E. CHAPMAN CO.

2/7

OAKDALE, MASSACHUSETTS

DIAL 835-3727 — 835-3221

Job Location Town of Hudson N.H.

Date January 28 1975 Hole No. 7-75

Started ..... Finished .....

off Riverside Drive LOG OF HOLE

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in inches
0"	18'	Fine brown sand.		
18'	30'	Medium brown sand.		
30'	49'	Brown sand & gravel.		
49'	56'	Fine light brown sand.		
		Refusal at 56'		

Used 42 ft. ..... inches of casing

Well rated at 50 G.P.M. 23 " Vacuum

Water level is 12'4" ft. below ground level

Remarks Set 10' of 66 slot screen from 50'-40'

Pumped 4 hours for sample

left in

Foreman George Irvine

KENSINGTON

KE-1

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

UNITED STATES DEPARTMENT
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES
SOUTHEASTERN AREA

By

EDWARD A. BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

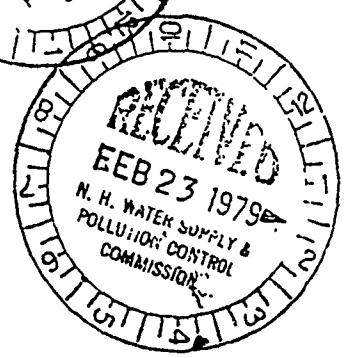
Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

ROCKINGHAM COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
HAMPTON FALLS 11. W16-6. Alt. 110 ft. Lat. 42°55'48". Long. 70°54'23".		
Till:		
Sand and gravel	6	6
Clay, yellow; gravel and rocks	33	39
Clay, blue; gravel and rocks	38	77
Bedrock	73	150
HAMPTON FALLS 15. W16-6. Alt. 115 ft. Lat. 42°55'32". Long. 70°53'57".		
Till	120	120
Bedrock	130	250
KENSINGTON 3. W16-5. Lat. 42°56'42". Long. 70°56'00". Alt. 75 ft.		
Till:		
Clay and rocks	9	9
Bedrock	99	108
KENSINGTON 4. W16-5. Alt. 107 ft. Lat. 42°56'16". Long. 70°56'58".		
Ice-contact deposits:		
Sand	15	15
Till	9	24
Bedrock:		
Slate	60	84
KENSINGTON 5. W16-4. Lat. 42°56'24". Long. 70°57'59". Alt. 225 ft.		
Till:		
Clay, sandy	95	95
Bedrock	25	120
KENSINGTON 6. W16-4. Alt. 250 ft. Lat. 42°56'24". Long. 70°58'20".		
Till	200	200
Bedrock	20	220
KENSINGTON 7. W16-5. Alt. 128 ft. Lat. 42°55'45". Long. 70°56'38".		
Ice-contact deposits:		
Sand, fine, rocky, and silt	38	38
Sand, fine to coarse, and gravel, coarse	10	48
Bedrock	2	50
KENSINGTON 8. W16-5. Alt. 123 ft. Lat. 42°55'26". Long. 70°56'20".		
Ice-contact deposits:		
Gravel	40	40
Bedrock, soft	20	60
KINGSTON 4. W16-6. Alt. 250 ft. Lat. 42°57'30". Long. 71°00'18".		
Till	155	155
Bedrock	9	164
KINGSTON 9. W16-5. Alt. 133 ft. Lat. 42°55'40". Long. 71°03'17".		
Outwash and shore deposits:		
Sand and silt	100	100
Bedrock	27	127
KINGSTON 16. W16-5. Lat. 42°56'19". Long. 71°03'04". Alt. 120 ft. Geologist's log.		
Marine deposits:		
Loam, silty, black	2	2
Sand, very fine and fine, brown	1	3
Silt and sand, very fine, mottled brown to light gray	4	7
Silt and clay, light gray; a little sand, very fine	13	20
Clay and silt, bluish-gray; layers of sand at 41 and 46 feet	29	49
KINGSTON 17. W16-5. Lat. 42°56'22". Long. 71°03'07". Alt. 130 ft. Geologist's log.		
Outwash and shore deposits:		
Topsoil, sandy, brown	2	2
Sand, fine to very coarse, mostly coarse; some gravel, fine to coarse, brown; streaks of medium sand, especially from 10 to 14 feet	12	14
Sand, fine to very fine, brown to light tan; some silt	6	20
KINGSTON 17.--Continued		
Outwash and shore deposits--Continued		
Silt and sand, very fine, interbedded with ¼- to 1-inch layers of medium sand; some ¼- to 1-inch brown silt layers; a few ¼- to 1-inch greenish-gray silt and clay layers	29	49
KINGSTON 18. W16-6. Lat. 42°56'23". Long. 70°02'24". Alt. 120 ft. Geologist's log.		
Outwash and shore deposits:		
Sand, very fine and fine, uniform tan; a little silt	7.0	7.0
Silt, grayish-brown	0.5	7.5
Sand, fine, uniform, yellowish tan, with some silty grayish-brown layers	3.5	11.0
Marine deposits:		
Silt, grayish-brown; some sand, very fine	3.0	14.0
Silt and clay, laminated, brown and gray	6.0	20.0
Silt and clay, bluish-gray	4.0	24.0
NEWFIELDS 5. W17-8. Alt. 103 ft. Lat. 43°02'15". Long. 70°56'27".		
Ice-contact deposits:		
Sand and gravel	60	60
Bedrock	50	110
NEWFIELDS 6. W17-8. Alt. 40 ft. Lat. 43°02'22". Long. 70°56'08".		
Unconsolidated deposits, undifferentiated	75	75
Bedrock	50	125
NEWINGTON 8. X17-1. Alt. 20 ft. Lat. 43°05'08". Long. 70°50'45".		
Marine deposits:		
Clay, sandy, yellow	15	15
Clay, blue	20	35
Till:		
Hardpan	31	66
Bedrock:		
Rock, shale-like, rotten	20	86
Rock, hard	328	414
NEWINGTON 9. X17-1. Alt. 38 ft. Lat. 43°05'13". Long. 70°50'41".		
Till:		
Clay and rocks, yellow	5	5
Clay and rocks, blue	4	9
Silt, gravel, and rocks	5	14
Bedrock:		
Rock, soft	13	27
Rock, hard	331	358
NEWINGTON 10. X17-5. Alt. 55 ft. Lat. 43°04'05". Long. 70°49'13".		
Outwash and shore deposits:		
Sand, gravelly, brown	15	15
Sand, well-graded, gray	10	25
Marine deposits:		
Clay, blue-gray	15	40
Till:		
Silt, sandy, gravelly, gray	10	50
Sand, fine, brown; contains rock fragments	10	60
Refusal		60
NEWINGTON 11. X17-5. Alt. 65 ft. Lat. 43°04'40". Long. 70°49'52".		
Marine deposits:		
Sand, fine, brown	10	10
Clay, hard, blue-gray	15	25
Clay and rock fragments	6	31
Refusal		31
NEWINGTON 12. X17-5. Alt. 65 ft. Lat. 43°04'03". Long. 70°49'13".		
Outwash and shore deposits:		
Sand and gravel, sandy, brown	20	20
Marine deposits:		
Clay, sandy, and silt, brown	25	45
Clay, sandy, gray	23	68
Refusal		68
NEWINGTON 13. X17-5. Alt. 70 ft. Lat. 43°04'00". Long. 70°49'12".		
Outwash and shore deposits:		
Gravel and sand, brown	20	20
Marine deposits:		
Sand, fine, and clay, brown-gray	18	38
Refusal		38
NEWINGTON 14. X17-5. Alt. 70 ft. Lat. 43°03'58". Long. 70°49'11".		
Outwash and shore deposits:		
Sand, coarse, gravelly, gray-brown	17	17
Marine deposits:		
Sand, fine, and clay lenses	15	32
Refusal		32
NEWINGTON 15. X17-5. Alt. 60 ft. Lat. 43°03'56". Long. 70°49'12".		
Outwash and shore deposits:		
Sand, fine	14	14
Marine deposits:		
Sand, fine, and clay	14	28
Refusal		28
NEWINGTON 16. X17-5. Alt. 80 ft. Lat. 43°03'55". Long. 70°49'11".		
Outwash and shore deposits:		
Sand, fine, with clay lenses	14	14
Marine deposits:		
Clay, blue	8	22
Till:		
Silt, sandy, gravelly, gray	4	26
Refusal		26
NEWINGTON 17. X17-5. Alt. 60 ft. Lat. 43°04'08". Long. 70°49'16".		
Outwash and shore deposits:		
Sand, fine, and clay lenses, brown	15	15
Marine deposits:		
Clay, gray	15	30
Till:		
Silt, sandy, gravelly, gray	6	36
Refusal		36
NEWINGTON 18. X17-5. Alt. 43 ft. Lat. 43°04'03". Long. 70°49'17".		
Marine deposits:		
Clay, gray	40	40
Clay, sandy, gray	15	55
Refusal		55
NEWINGTON 19. X17-5. Alt. 40 ft. Lat. 43°03'56". Long. 70°49'18".		
Marine deposits:		
Clay, sandy, gray	24	24
Refusal		24
NEWINGTON 20. X17-5. Alt. 30 ft. Lat. 43°04'01". Long. 70°49'33".		
Marine deposits:		
Clay, gray	10	10
Refusal		10
NEWINGTON 21. X17-5. Alt. 50 ft. Lat. 43°04'28". Long. 70°49'48".		
Marine deposits:		
Clay, gray	19.5	19.5
Refusal		19.5
NEWINGTON 22. X17-4. Alt. 50 ft. Lat. 43°04'44". Long. 70°50'11".		
Marine deposits:		
Clay, gray	15	15
Silt, gray	8	23
Refusal		23
NEWINGTON 23. X17-1. Alt. 60 ft. Lat. 43°05'03". Long. 70°50'21".		
Marine deposits:		
Sand, fine, brown	15	15
Clay, gray	22	37
Refusal		37
NEWINGTON 24. X17-1. Alt. 40 ft. Lat. 43°05'13". Long. 70°50'26".		
Marine deposits:		
Clay, gray	24	24
Refusal		24

Town Clerk
479-3152





PROGRESS REPORT

1975 - 1977 TEST WELL INVESTIGATION

SEABROOK, NEW HAMPSHIRE

WHITMAN & HOWARD, INC.
ENGINEERS AND ARCHITECTS
45 William Street
Wellesley, Massachusetts

J.N. 74-088

DECEMBER, 1977

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard, Inc.
DATE STARTED 1/15/75 JOB NUMBER ____ WELL NO. 1-75
TOWN OR CITY Seabrook SITE 1 DATE COMPLETED 1/15/75
LOCATION Gravel Pit off Route 107, Kensington

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0'-6'	Fine-medium sand & gravel	DIA. TEST WELL 2½"
6'-12'	Fine-medium sand & gravel	STATIC WL FROM TOP PIPE 5'2"
12'-18'	Fine-medium sand & gravel	STATIC WL FROM GROUND 4'8"
18'-24'	Fine-medium sand	TOTAL DEPTH DRIVEN 75'4"
24'-30'	Fine sand & clay	DEPTH DEVELOPED ----
30'-36'	Fine sand & clay	PIPE LEFT IN PLACE None
36'-42'	Fine sand & clay	TYPE SCREEN ----
42'-48'	Fine sand & clay	DEPTH SCREEN SET ----
48'-54'	Fine-medium sand	DEVELOPED & RATED AT
54'-60'	Fine-medium sand	---- G.P.M. -- "VAC.
60'-66'	Fine sand & silt	WATER SAMPLE ----
66'-75'4"	Fine sand & silt	DATE COLLECTED ----
75'4"	Refusal	REMARKS
		Pulled out

Record of pumping test to determine specific yield

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by S. Osborne & R. Duggan

SIGNED ____

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard
DATE STARTED 9/22/77 JOB NUMBER ____ WELL NO. 4; -77
TOWN OR CITY Seabrook, NH SITE Kensington DATE COMPLETED 9/26/77
LOCATION ____

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0"-21'	brown fine to med. sand, traces of	DIA. TEST WELL 2½"
	clay med. free	STATIC WL FROM TOP PIPE
21'-33'	brown fine sand, traces of clay med. free	STATIC WL FROM GROUND 11'
33'-57'	brown & gray very fine sand, traces of	TOTAL DEPTH DRIVEN 68'
	clay med. free	DEPTH DEVELOPED
57'-68'	brown & gray very fine sand & clay	PIPE LEFT IN PLACE
	tight	TYPE SCREEN
68'	refusal	DEPTH SCREEN SET
		DEVELOPED & RATED AT
	Pulled back to 57' set	G.P.M. " VAC.
	slot 20 screen - would not	WATER SAMPLE
	pump - pulled out	DATE COLLECTED
		REMARKS

Record of pumping test to determine specific yield

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by L.N. Osborne & E. Peterson

SIGNED ____

KENSINGTON

KE-2

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

ROCKINGHAM COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
HAMPTON FALLS 11. W16-6. Alt. 110 ft. Lat. 42°55'48". Long. 70°54'23".		
Till:		
Sand and gravel	6	6
Clay, yellow; gravel and rocks	33	39
Clay, blue; gravel and rocks	38	77
Bedrock	73	150
HAMPTON FALLS 15. W16-6. Alt. 115 ft. Lat. 42°55'32". Long. 70°53'57".		
Till	120	120
Bedrock	130	250
KENSINGTON 3. W16-5. Lat. 42°56'42". Long. 70°56'00". Alt. 75 ft.		
Till:		
Clay and rocks	9	9
Bedrock	99	108
KENSINGTON 4. W16-5. Alt. 107 ft. Lat. 42°56'16". Long. 70°56'58".		
Ice-contact deposits:		
Sand	15	15
Till	9	24
Bedrock:		
Slate	60	84
KENSINGTON 5. W16-4. Lat. 42°56'24". Long. 70°57'59". Alt. 225 ft.		
Till:		
Clay, sandy	95	95
Bedrock	25	120
KENSINGTON 6. W16-4. Alt. 250 ft. Lat. 42°56'24". Long. 70°58'20".		
Till	200	200
Bedrock	20	220
KENSINGTON 7. W16-5. Alt. 128 ft. Lat. 42°55'45". Long. 70°56'38".		
Ice-contact deposits:		
Sand, fine, rocky, and silt	38	38
Sand, fine to coarse, and gravel, coarse	10	48
Bedrock	2	50
KENSINGTON 8. W16-5. Alt. 123 ft. Lat. 42°55'26". Long. 70°56'20".		
Ice-contact deposits:		
Gravel	40	40
Bedrock, soft	20	60
KINGSTON 4. W16-6. Alt. 250 ft. Lat. 42°57'30". Long. 71°00'18".		
Till	155	155
Bedrock	9	164
KINGSTON 9. W16-5. Alt. 133 ft. Lat. 42°55'40". Long. 71°03'17".		
Outwash and shore deposits:		
Sand and silt	100	100
Bedrock	27	127
KINGSTON 16. W16-5. Lat. 42°56'19". Long. 71°03'04". Alt. 120 ft. Geologist's log.		
Marine deposits:		
Loam, silty, black	2	2
Sand, very fine and fine, brown	1	3
Silt and sand, very fine, mottled brown to light gray	4	7
Silt and clay, light gray; a little sand, very fine	13	20
Clay and silt, bluish-grey; layers of sand at 41 and 46 feet	29	49
KINGSTON 17. W16-5. Lat. 42°56'22". Long. 71°03'07". Alt. 130 ft. Geologist's log.		
Outwash and shore deposits:		
Topsoil, sandy, brown	2	2
Sand, fine to very coarse, mostly coarse; some gravel, fine to coarse, brown; streaks of medium sand, especially from 10 to 14 feet	12	14
Sand, fine to very fine, brown to light tan; some silt	6	20
KINGSTON 17.--Continued		
Outwash and shore deposits:--Continued		
Silt and sand, very fine, interbedded with ½- to 1-inch layers of medium sand; some ½- to 1-inch brown silt layers; a few ½- to 1-inch greenish-gray silt and clay layers	29	49
KINGSTON 18. V16-6. Lat. 42°56'23". Long. 70°02'24". Alt. 120 ft. Geologist's log.		
Outwash and shore deposits:		
Sand, very fine and fine, uniform tan; a little silt	7.0	7.0
Silt, grayish-brown	0.5	7.5
Sand, fine, uniform, yellowish tan, with some silty grayish-brown layers	3.5	11.0
Marine deposits:		
Silt, grayish-brown; some sand, very fine	3.0	14.0
Silt and clay, laminated, brown and gray	6.0	20.0
Silt and clay, bluish-gray	4.0	24.0
NEWFIELDS 5. W17-8. Alt. 103 ft. Lat. 43°02'15". Long. 70°56'27".		
Ice-contact deposits:		
Sand and gravel	60	60
Bedrock	50	110
NEWFIELDS 6. W17-8. Alt. 40 ft. Lat. 43°02'22". Long. 70°56'08".		
Unconsolidated deposits, undifferentiated	75	75
Bedrock	50	125
NEWINGTON 8. X17-1. Alt. 20 ft. Lat. 43°05'08". Long. 70°50'45".		
Marine deposits:		
Clay, sandy, yellow	15	15
Clay, blue	20	35
Till:		
Hardpan	31	66
Bedrock:		
Rock, shale-like, rotten	20	86
Rock, hard	328	414
NEWINGTON 9. X17-1. Alt. 38 ft. Lat. 43°05'13". Long. 70°50'41".		
Till:		
Clay and rocks, yellow	5	5
Clay and rocks, blue	4	9
Silt, gravel, and rocks	5	14
Bedrock:		
Rock, soft	13	27
Rock, hard	331	358
NEWINGTON 10. X17-5. Alt. 55 ft. Lat. 43°04'05". Long. 70°49'13".		
Outwash and shore deposits:		
Sand, gravelly, brown	15	15
Sand, well-graded, gray	10	25
Marine deposits:		
Clay, blue-gray	15	40
Till:		
Silt, sandy, gravelly, gray	10	50
Sand, fine, brown; contains rock fragments	10	60
Refusal		60
NEWINGTON 11. X17-5. Alt. 65 ft. Lat. 43°04'40". Long. 70°49'52".		
Marine deposits:		
Sand, fine, brown	10	10
Clay, hard, blue-gray	15	25
Clay and rock fragments	6	31
Refusal		31
NEWINGTON 12. X17-5. Alt. 65 ft. Lat. 43°04'03". Long. 70°49'13".		
Outwash and shore deposits:		
Sand and gravel, sandy, brown	20	20
Marine deposits:		
Clay, sandy, and silt, brown	25	45
Clay, sandy, gray	23	68
Refusal		68
NEWINGTON 13. X17-5. Alt. 70 ft. Lat. 43°04'00". Long. 70°49'12".		
Outwash and shore deposits:		
Gravel and sand, brown	20	20
Marine deposits:		
Sand, fine, and clay, brown-gray	18	38
Refusal		38
NEWINGTON 14. X17-5. Alt. 70 ft. Lat. 43°03'58". Long. 70°49'11".		
Outwash and shore deposits:		
Sand, coarse, gravelly, gray-brown	17	17
Marine deposits:		
Sand, fine, and clay lenses	15	32
Refusal		32
NEWINGTON 15. X17-5. Alt. 60 ft. Lat. 43°03'56". Long. 70°49'12".		
Outwash and shore deposits:		
Sand, fine	14	14
Marine deposits:		
Sand, fine, and clay	14	28
Refusal		28
NEWINGTON 16. X17-5. Alt. 80 ft. Lat. 43°03'55". Long. 70°49'11".		
Outwash and shore deposits:		
Sand, fine, with clay lenses	14	14
Marine deposits:		
Clay, blue	8	22
Till:		
Silt, sandy, gravelly, gray	4	26
Refusal		26
NEWINGTON 17. X17-5. Alt. 60 ft. Lat. 43°04'08". Long. 70°49'16".		
Outwash and shore deposits:		
Sand, fine, and clay lenses, brown	15	15
Marine deposits:		
Clay, gray	15	30
Till:		
Silt, sandy, gravelly, gray	6	36
Refusal		36
NEWINGTON 18. X17-5. Alt. 43 ft. Lat. 43°04'03". Long. 70°49'17".		
Marine deposits:		
Clay, gray	40	40
Clay, sandy, gray	15	55
Refusal		55
NEWINGTON 19. X17-5. Alt. 40 ft. Lat. 43°03'56". Long. 70°49'18".		
Marine deposits:		
Clay, sandy, gray	24	24
Refusal		24
NEWINGTON 20. X17-5. Alt. 30 ft. Lat. 43°04'01". Long. 70°49'33".		
Marine deposits:		
Clay, gray	10	10
Refusal		10
NEWINGTON 21. X17-5. Alt. 50 ft. Lat. 43°04'28". Long. 70°49'48".		
Marine deposits:		
Clay, gray	19.5	19.5
Refusal		19.5
NEWINGTON 22. X17-4. Alt. 50 ft. Lat. 43°04'44". Long. 70°50'11".		
Marine deposits:		
Clay, gray	15	15
Silt, gray	8	23
Refusal		23
NEWINGTON 23. X17-1. Alt. 60 ft. Lat. 43°05'03". Long. 70°50'21".		
Marine deposits:		
Sand, fine, brown	15	15
Clay, gray	22	37
Refusal		37
NEWINGTON 24. X17-1. Alt. 40 ft. Lat. 43°05'13". Long. 70°50'26".		
Marine deposits:		
Clay, gray	24	24
Refusal		24

KENSINGTON

KE-3

Report of Initial Investigation
Ground Water Sources of Supply
for the
Town of Seabrook, New Hampshire

Whitman & Howard, Inc.
89 Brookline Street
Boston - Mass.

January, 1956

PORTER & DESMOND

2 GARDEN STREET WOBURN, MASS.

LOG OF WELL

Log of Well For Town of Seabrook Test No. 1 Leu. #7

Address Seabrook N.H.

Well Located At Off New Zealand Rd. on Grovettis property rear of pit In County, State of

Date Testing Started 4/55 Diameter Test Hole 2½"

Total Depth to Bottom of Well 55' Static Level 4'8"

DEPTHS OF STRATA	FORMATION	PUMPING TESTS
0' -10'6"	Coarse sand and gravel	
10'6"-15'8"	" " " "	
15'8"-21'	" " " "	
21'-26'3"	Coarse sand and gravel	
26'3"-31'7"	" " " "	
31'7"-38'8"	" " " "	Well pumped free
38'8"-45'11"	Coarse sand and gravel	all the way down
45'11"-48'1"	" " " "	
48'1"- 55'	Coarse sand and gravel	
	Refusal Pulled to 54'3" and pumped 3 hours ,Took Sample	
	Drove observation well to 54'3"	
	Pumping at rate of 30GPM Obs. DD 10½"	
	Pumped for 3 hours	

Remarks and Opinion of Test:

Kelly Driller

Gouldthorp Helper

MAP OF LOCATION

PORTER & DESMOND
2 GARDEN STREET WOBURN, MASS.

LOG OF WELL

Log of Well For Town of Seabrook Test No. 1 Loc. #14

Address Seabrook N.H.
Off Newzealand Rd. E. 400' on Gove's Land

Well Located At _____ In _____ County, State of _____

Date Testing Started June 55 Diameter Test Hole 2½

Total Depth to Bottom of Well 52'7 Static Level 2'9"

DEPTHS OF STRATA	FORMATION	PUMPING TESTS
0 - 9'1	Fine brown sand	
9'1 -14'3	" " "	
14'3-19'6	" " "	
19'6-24'10	Fine brown sand with trace of clay	
24'10-29'9	" " " " " " "	
29'9-35'2	Fine brown sand	
36'2-40'5	" " "	
40'5-45'4	Gray sand gravel and clay	8 GPM
45'4-51'11	" " " " " "	Tight
51'11-52'7	" " " " " Refusal	
	Pulled out	

Remarks and Opinion of Test:

Kelly Driller

Helper

MAP OF LOCATION

Nov. 1969

REPORT ON

WELL TESTING

SEABROOK, N.H.

Nov. - 1969

WHITMAN & HOWARD, INC.
ENGINEERS AND ARCHITECTS
89 Broad Street
Boston, Mass.

RECEIVED
FEB 23 1979
N. H. WATER SUPPLY & POLLUTION CONTROL COMMISSION

MAY 21 1974
N. H. WATER SUPPLY & POLLUTION CONTROL COMMISSION

NOVEMBER, 1969

R. E. CHAPMAN CO.
OAKDALE, MASSACHUSETTS
DIAL 633 3727 — 633-3221

Job Location Seabrook N.H.

Date Aug 21, 1969 Hole No. 53-6

Started ... Finished ...

300' east of #53-6 LOG OF HOLE

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in inches
0"	6"	Peat		
6"	20'	Gray sand & clay		
26'	29'	Firm gray clay		
29'	35'	Firm gray clay & shop stone		
35'	50'	Firm gray clay		
50'	70'	Fine silty gry sand		
70'	76'	Fine gray silt & clay		
76'	84'	Shale type gravel & clay		
		Refusal at	84'	

Used 63 ft. ... inches of casing

Well rated at — G.P.M. — ." Vacuum

Water level is 1'-7" ft. below ground level

Remarks Pumped right on bottom 70'-81'
Would not pump free Pulled back to 63'
Well plugged up. Working fine after
washing out. Left 1 in pipe and.

Foreman George Lucier

R. E. CHAPMAN CO.
OAKDALE, MASSACHUSETTS
DIAL 633 3727 — 633-3221

Job Location Seabrook N.H.

Date Sept. 3, 1969 Hole No. 54 & 54-A

Started ... Finished ...

600' south of wells LOG OF HOLE #1 & #2.

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in inches
0"	2'	Peat		
2'	23'	Hard pan & boulders		
		Refusal at	23'	
#54-A		14' in from #54		
0"	4'	Peat		
4'	21'	Hard pan & boulders		
		Refusal at	21'	
		TOTAL depth	44'	

Used ... ft. ... inches of casing

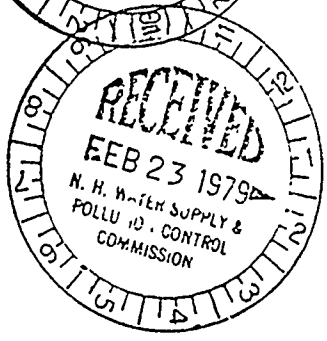
Well rated at — G.P.M. ." Vacuum

Water level is — ft. below ground level

Remarks Pulled out

Foreman George Lucier



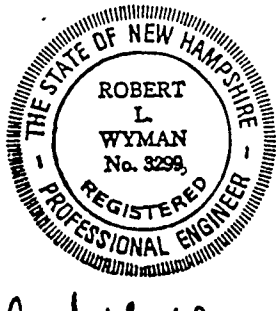


PROGRESS REPORT ON

1978 TEST WELL INVESTIGATION

SEABROOK, NEW HAMPSHIRE

WHITMAN & HOWARD, INC.
ENGINEERS AND ARCHITECTS
45 William Street
Wellesley, Massachusetts 02181



Robert L. Wyman

J.N. 8-053

AUGUST, 1978

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard

DATE STARTED 4/13/78 JOB NUMBER ____ WELL NO. #62-78
TOWN OR CITY Seabrook, NSITE ____ DATE COMPLETED 4/14/7
LOCATION See map on back

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0"-18"	topsoil	DIA. TEST WELL 2½"
18'-36'	gray & blue clay	STATIC WL FROM TOP PIPE
36'-73'	gray clay & very fine silty sand	STATIC WL FROM GROUND flowing
73'	refusal - pulled back to 72'	TOTAL DEPTH DRIVEN 73'
		DEPTH DEVELOPED 72'
		PIPE LEFT IN PLACE 72'
		TYPE SCREEN
		DEPTH SCREEN SET
		DEVELOPED & RATED AT flowing G.P.M. 8 " VAC.
		WATER SAMPLE
		DATE COLLECTED
		REMARKS

Record of pumping test to determine specific yied

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by Leon Osborne

SIGNED ____

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard
DATE STARTED 4/17/78 JOB NUMBER ____ WELL NO. #63-73
TOWN OR CITY Seabrook, N SITE ____ DATE COMPLETED 4/17
LOCATION see map on back

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0"-1'	topsoil	DIA. TEST WELL 2½"
1'-33'	gray & brown fine sand & clay tight	STATIC WL FROM TOP PIPE 7'4"
33'-36'	gray medium coarse sand some fine sand	STATIC WL FROM GROUND 5'
	free	TOTAL DEPTH DRIVEN 56'
36'-56'	gray clay & fine sand traces of gravel	DEPTH DEVELOPED 36'
	tight	PIPE LEFT IN PLACE 30'
56'	refusal-pulled back to 39'-no good	TYPE SCREEN 80 slot Johnson 1 1/4"x5' no rise
	pulled back to 36', set 80 slot screen	DEPTH SCREEN SET 31'-36'
	and developed	DEVELOPED & RATED AT 35 G.P.M. 27 " VAC.
		WATER SAMPLE yes
		DATE COLLECTED 4/19/78
		REMARKS
		pumped 3 hours for sample

Record of pumping test to determine specific yield

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by Leon Osborne

SIGNED ____

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard, Inc.
DATE STARTED 1/16/75 JOB NUMBER ____ WELL NO. 2-75
TOWN OR CITY Seabrook SITE 2 DATE COMPLETED 1/17/75
LOCATION Sand Pit off True Road, Seabrook

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0'-6'	Fine-medium sand & gravel	DIA. TEST WELL 2½"
6'-12'	Fine-medium sand & gravel	STATIC WL FROM TOP PIPE 2'1"
12'-18'	Fine-medium sand & gravel	STATIC WL FROM GROUND 1'9"
18'-24'	Fine-coarse sand & gravel	TOTAL DEPTH DRIVEN 73'6"
24'-30'	Fine-medium sand & silt	DEPTH DEVELOPED 52'6"
30'-36'	Fine sand	PIPE LEFT IN PLACE 46'6"
36'-42'	Fine-medium gray sand	TYPE SCREEN 35 slot
42'-48'	Fine-medium gray sand	DEPTH SCREEN SET 52'6"
48'-54'	Fine-medium gray sand	DEVELOPED & RATED AT
54'-60'	Fine-medium gray sand	35 G.P.M. 28" VAC.
60'-66'	Fine sand & clay	WATER SAMPLE
66'-73'6"	Fine sand & clay - refusal	DATE COLLECTED 1/20/75
		REMARKS
		Left in

Record of pumping test to determine specific yield

Pumped 35 g.p.m for 2 hr. from #2 observed 5 ft. 1 in, drawdown in obs. 2 ft. away at a depth of 52 ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of 7 gallons per foot of drawdown

Well driven by S. Osborne & R. Duggan

SIGNED _____

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard, Inc.
DATE STARTED 1/21/75 JOB NUMBER ____ WELL NO. 3-75
TOWN OR CITY Seabrook SITE 3 DATE COMPLETED 1/21/
LOCATION Off Route 150, South Hampton

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0' - 4'	Peat	DIA. TEST WELL 2½"
4' - 6'	Blue clay	STATIC WL FROM TOP PIPE 4'2"
6'- 12'	Blue clay	STATIC WL FROM GROUND 3'6"
12'-18'	Blue clay	TOTAL DEPTH DRIVEN 54'4"
18'-24'	Blue clay	DEPTH DEVELOPED ----
24-30'	Blue clay	PIPE LEFT IN PLACE None
30'-36'	Blue clay	TYPE SCREEN ----
36'-42'	Blue clay & fine sand	DEPTH SCREEN SET ----
42'-48'	Blue clay & fine sand	DEVELOPED & RATED AT
48'-54'4"	Blue clay & fine sand	---- G.P.M. -- " VAC.
54'4" --	Pulled out - Refusal	WATER SAMPLE ----
		DATE COLLECTED ----
		REMARKS
		Pulled out

Record of pumping test to determine specific yield

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by S. Osborne & R. Duggan

SIGNED _____

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard

DATE STARTED 8/27/76 JOB NUMBER --- WELL NO. 23-76
TOWN OR CITY Seabrook SITE In So. Hampton near hardware DATE COMPLETED
LOCATION Locust St. store

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0'-6'	Gray clay	DIA. TEST WELL 2½"
6'-12'	Gray clay	STATIC WL FROM TOP PIPE 1'2"
12'-18'	Gray clay-sand & gravel	STATIC WL FROM GROUND 8"
18'-24'	Gray clay-some sharp gravel	TOTAL DEPTH DRIVEN 29'
24'-29'	Gray clay-some sharp gravel	DEPTH DEVELOPED
29'	refusal	PIPE LEFT IN PLACE none
		TYPE SCREEN
		DEPTH SCREEN SET
		DEVELOPED & RATED AT G.P.M. " VAC.
		WATER SAMPLE
		DATE COLLECTED
		REMARKS
		no good pulled out

Record of pumping test to determine specific yield

Pumped ___ g.p.m for ___ hr. from ___ observed ___ ft. ___ in, drawdown in obs. ___ ft away at a depth of ___ ft.
Pumped ___ g.p.m for ___ hr. from ___ observed ___ ft. ___ in, drawdown in obs. ___ ft. away at a depth of ___ ft.

Specific yield of ___ gallons per foot of drawdown

Well driven by S. Osborne

SIGNED ___

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER J. Whitman & Howard

DATE STARTED 5/2/75 JOB NUMBER ____ WELL NO. 75--23
TOWN OR CITY Seabrook SITE 23 DATE COMPLETED 5/2
LOCATION Mill Road, Hampton Falls

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0'-8'	Hard packed sand and gravel and clay	DIA. TEST WELL 2½"
	boulders Moved 10'	STATIC WL FROM TOP PIPE 1'3"
0'-13'	Hard packed sand and gravel and clay	STATIC WL FROM GROUND 1'
	boulders	TOTAL DEPTH DRIVEN 21'
	No Good, Pulled Out	DEPTH DEVELOPED
		PIPE LEFT IN PLACE
		TYPE SCREEN
		DEPTH SCREEN SET
		DEVELOPED & RATED AT
		G.P.M. " VAC.
		WATER SAMPLE
		DATE COLLECTED
		REMARKS

Record of pumping test to determine specific yield

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by S. Osborne & R. Duggan

SIGNED ____

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard
DATE STARTED 10/4/77 JOB NUMBER ____ WELL NO. 56-77
TOWN OR CITY Seabrook, NH SITE So. Hampton DATE COMPLETED 10/5/
LOCATION ____

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0"-18'	brown med to coarse sand free	DIA. TEST WELL 24"
18'-28'	brown & gray med. to coarse sand free	STATIC WL FROM TOP PIPE
28'-47'	gray fine sand & clay tight	STATIC WL FROM GROUND
47'	refusal - pulled back to 27'6"	TOTAL DEPTH DRIVEN 47'
		DEPTH DEVELOPED 27'6"
		PIPE LEFT IN PLACE 24'
		TYPE SCREEN 35 slot Johnso
		DEPTH SCREEN SET 27'6"
		DEVELOPED & RATED AT 60 G.P.M. 22" VAC.
		WATER SAMPLE DATE COLLECTED
		REMARKS

Record of pumping test to determine specific yield

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by Leon N. Osborne

SIGNED ____

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard
DATE STARTED 10/6/77 JOB NUMBER ____ WELL NO. 57-77
TOWN OR CITY Seabrook, NH SITE So. Hampton DATE COMPLETED 10/6
LOCATION ____

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0"-18'	Brown & gray fne sand & clay tight	DIA. TEST WELL 2½"
18'-30'	Brown fine sand w/traces of clay tight	STATIC WL FROM TOP PIPE
30'-39'	Gray fine sand & clay tight	STATIC WL FROM GROUND 8'
39'	Refusal - pulled out	TOTAL DEPTH DRIVEN 39'
		DEPTH DEVELOPED
		PIPE LEFT IN PLACE
		TYPE SCREEN
		DEPTH SCREEN SET
		DEVELOPED & RATED AT
		G.P.M. " VAC.
		WATER SAMPLE
		DATE COLLECTED
		REMARKS

Record of pumping test to determine specific yield

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by Leon N. Osborne

SIGNED ____

LOG OF TEST WELL

CONTRACTOR Wilmington Pump Supply, Inc.
ENGINEER Whitman & Howard
DATE STARTED 10/11/77 JOB NUMBER ____ WELL NO. 59-77
TOWN OR CITY Seabrook, NH SITE Kensington DATE COMPLETED 10/1?
LOCATION ____

DEPTH OF STRATUM	FORMATION FOUND EACH STRATUM	
0"-2'	Brown fine sand	DIA. TEST WELL 2½"
2'-18'	Gray & brown clay tight	STATIC WL FROM TOP PIPE
18'-24'	Brown very fine sand w/ traces of clay	STATIC WL FROM GROUND 7'
24'-36'	Brown fine sand w/ traces of clay-Med free	TOTAL DEPTH DRIVEN 53'
36'-42'	Brown & gray fine sand w/ traces of clay	DEPTH DEVELOPED
42'-53'	Gray fine sand & clay tight med. free	PIPE LEFT IN PLACE
53'	Refusal - pulled out	TYPE SCREEN
		DEPTH SCREEN SET
		DEVELOPED & RATED AT
		G.P.M. " VAC.
		WATER SAMPLE
		DATE COLLECTED
		REMARKS

Record of pumping test to determine specific yield

Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.
Pumped ____ g.p.m for ____ hr. from ____ observed ____ ft. ____ in, drawdown in obs. ____ ft. away at a depth of ____ ft.

Specific yield of ____ gallons per foot of drawdown

Well driven by Leon N. Osborne

SIGNED ____

LEE

LE-3

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

UNITED STATES DEPARTMENT
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
DOVER 69. W18-9. Alt. 125 ft. Lat. 43°00'43". Long. 70°52'31".		
Unconsolidated deposits, undifferentiated	40	40
Bedrock	89	129
DOVER 70. X18-7. Alt. 80 ft. Lat. 43°09'45". Long. 70°51'58".		
Unconsolidated deposits, undifferentiated	20	20
Bedrock	20	40
DOVER 71. W18-6. Alt. 55 ft. Lat. 43°11'35". Long. 70°52'36".		
Unconsolidated deposits, undifferentiated	25	25
Bedrock	198	223
DOVER 72. W18-2. Alt. 150 ft. Lat. 43°13'25". Long. 70°57'20".		
Ice-contact deposits:		
Sand and gravel, gray; some clay	16	16
Gravel, brown (good water-bearing material)	17	33
Sand, gray; some clay	27	60
Till:		
Hardpan	1	61
Bedrock		61
DOVER 73. W18-9. Alt. 105 ft. Lat. 43°09'19". Long. 70°52'40".		
Unconsolidated deposits, undifferentiated	20	20
Bedrock	86	106
DOVER 74. W18-9. Alt. 95 ft. Lat. 43°09'56". Long. 70°53'38".		
Marine deposits:		
Clay	38	38
Silt	10	48
Ice-contact deposits:		
Clay, sandy; some sand, fine	6	54
Refusal		54
DOVER 75. X18-7. Alt. 42 ft. Lat. 43°08'00". Long. 70°50'14".		
Unconsolidated deposits, undifferentiated:		
Gravel, coarse	5	5
Marine deposits:		
Clay	25	30
Ice-contact deposits:		
Sand, fine	28	58
Refusal		58
DOVER 76. X18-7. Alt. 12 ft. Lat. 43°07'43". Long. 70°50'12".		
Marine deposits:		
Sand, fine	5	5
Clay	25	30
Ice-contact deposits:		
Gravel	13	43
DOVER 77. X18-7. Alt. 125 ft. Lat. 43°09'58". Long. 70°52'24". (Log starts in bottom of gravel pit about 20 ft. below original land surface.)		
Ice-contact deposits:		
Sand, fine	10	10
Gravel, coarse, dry	26	36
Bedrock		36
DOVER 78. X18-7. Alt. 8 ft. Lat. 43°07'35". Long. 70°50'11".		
Marine deposits:		
Sand	10	10
Clay, very soft	28	38
Sand, fine, and silt	8	46
Ice-contact deposits:		
Sand and gravel	40	86
Bedrock (assumed)		86
DOVER 79. X18-7. Alt. 10 ft. Lat. 43°07'40". Long. 70°50'30".		
Marine deposits:		
Sand	10	10
Clay, very soft	60	70
Ice-contact deposits:		
Sand	9	79
Bedrock (assumed)		79
DOVER 80. W18-3. Alt. 203 ft. Lat. 43°13'43". Long. 70°53'53".		
Ice-contact deposits:		
Sand and gravel	90	90
Bedrock	505	595
DOVER 81. W18-5. Alt. 145 ft. Lat. 43°11'11". Long. 70°55'29".		
Marine deposits:		
Sand, fine	30.0	30.0
Sand and clay	57.5	87.5
DOVER 82. W18-9. Alt. 100 ft. Lat. 43°09'52". Long. 70°53'59".		
Outwash and shore deposits:		
Clay and sand, gray	10	10
Marine deposits:		
Clay and sand, brown	35	45
Sand, clay, and gravel	20	65
Ice-contact deposits:		
Sand and gravel	35	100
Bedrock		100
DOVER 83. W18-2. Alt. 135 ft. Lat. 43°13'21". Long. 70°57'07".		
Ice-contact deposits:		
Fill	10	10
Sand and gravel	71	81
Till:		
Hardpan	10	91
Bedrock		91
DOVER 84. W18-6. Alt. 160 ft. Lat. 42°10'04". Long. 70°54'07".		
Ice-contact deposits:		
Sand, fine; scattered gravel	140.0	140.0
Unconsolidated deposits, undifferentiated:		
Clay	20.0	160.0
Gravel	8.5	168.5
Bedrock		168.5
DURHAM 5. W18-8. Alt. 30 ft. Lat. 43°08'09". Long. 70°56'10".		
Till:		
Sand and rocks	10	10
Bedrock:		
Exeter diorite	488	498
DURHAM 6. W18-8. Alt. 27 ft. Lat. 43°08'12". Long. 70°56'14".		
Unconsolidated deposits, undifferentiated	4	4
Bedrock:		
Exeter diorite	546	550
DURHAM 7. W18-8. Alt. 37 ft. Lat. 43°08'31". Long. 70°55'09".		
Marine deposits:		
Clay	50	50
Sand, fine	5	55
Clay	30	85
Bedrock	110	195
DURHAM 9. W17-1. Alt. 95 ft. Lat. 43°07'12". Long. 70°58'01".		
Marine deposits:		
Topsoil	4	4
Clay, brown	9	13
Sand, fine, traces of clay	18	31
Ice-contact deposits:		
Sand, medium to coarse; some gravel	22	53
Sand, fine, [illegible]	5	58
DURHAM 10. W18-[illegible]. Alt. 95 ft. Lat. 43°07'36". Long. 70°58'11".		
Ice-contact deposits:		
Topsoil	6.0	6.0
Sand, coarse, and gravel, medium; trace of clay	10.0	16.0
Sand, coarse, and gravel, medium	10.0	26.0
Sand, coarse	5.0	31.0
Sand, coarse, and gravel, fine; trace of clay	15.0	46.0
Coarse material, no sample recovery	5.0	51.0
Sand, fine, and clay	36.8	87.8
DURHAM 11. W18-7. Alt. 80 ft. Lat. 43°07'42". Long. 70°57'50".		
Marine deposits:		
Topsoil	4.0	4.0
Clay, blue	19.0	23.0
Sand, fine, brown	4.0	27.0
Clay, blue	8.0	35.0
Sand, fine, brown	5.0	40.0
Till:		
Sand, fine, gray, and clay; gravel, sharp	7.5	47.5
Refusal		47.5
DURHAM 12. W17-1. Alt. 75 ft. Lat. 43°08'00". Long. 70°57'40".		
Marine deposits:		
Clay, firm	10.0	10.0
Till:		
Clay and boulders	10.3	20.3
Refusal		20.3
DURHAM 13. W18-9. Alt. 10 ft. Lat. 43°08'03". Long. 70°53'19".		
Marine deposits:		
Clay	50	50
Sand	10	60
Bedrock	116	176
FARMINGTON 1. V20-8. Alt. 255 ft. Lat. 43°22'37". Long. 71°02'45".		
Ice-contact deposits:		
Sand and gravel	55	55
FARMINGTON 2. V20-8. Alt. 257 ft. Lat. 43°22'47". Long. 71°02'56".		
Ice-contact deposits:		
Sand, fine	15	15
Bedrock	4	19
FARMINGTON 4. V19-3. Alt. 285 ft. Lat. 43°21'28". Long. 71°01'50".		
Ice-contact deposits:		
Sand and gravel	26	26
FARMINGTON 5. V19-2. Alt. 285 ft. Lat. 43°22'13". Long. 71°02'36".		
Ice-contact deposits:		
Sand and gravel, coarse, cobbly	40	40
Sand	25	65
Gravel, coarse	13	78
Bedrock	145	223
LEE 4. W18-7. Alt. 112 ft. Lat. 43°09'16". Long. 70°59'08".		
Ice-contact deposits:		
Topsoil	5.0	5.0
Sand, medium, brown, and gravel	11.0	16.0
Sand, medium, gray, and gravel	10.0	26.0
Sand, coarse, gray, and gravel	6.0	32.0
Sand, medium, gray, and gravel	6.0	38.0
Sand, coarse, and broken rock, brown	5.0	43.0
Sand, medium, and gravel	4.5	47.5
Sand, coarse, and gravel	3.5	51.0
Refusal		51.0
LEE 5. W18-7. Alt. 112 ft. Lat. 43°09'16". Long. 70°59'09".		
Ice-contact deposits:		
Loam and sand	1.5	1.5
Sand, medium to coarse	36.5	38.0
Sand, coarse, and gravel, fine; a trace of clay	7.0	45.0
Sand, coarse; some gravel, fine	3.0	48.0
LEE 10. V17-3. Alt. 190 ft. Lat. 43°07'17". Long. 71°00'48".		
Ice-contact deposits:		
Sand and gravel	75	75
Bedrock:		
Elliot formation	79	154
LEE 11. V17-3. Alt. 195 ft. Lat. 43°07'27". Long. 71°00'34".		
Ice-contact deposits:		
Sand and gravel	45	45
Bedrock	75	120

LEE

LE-4

NED - Fiss

Fossil-log

Byrne 11

STEVEN L. DEAN
Consultant Geologist
Box 487
Parishville, N.Y.
13672

May 15, 1977

Mr. Joseph Murphy
Whitman & Howard, Inc.
45 Williams St.
Wellesley, Massachusetts
02181

Dear Mr. Murphy:

Seismic investigations for the purpose of locating new municipal water sites for the City of Portsmouth, New Hampshire were completed on April 25, 1977.

This report is a complete presentation of my findings. I would be pleased to discuss this report with you at your convenience.

Sincerely yours,

Steven L. Dean

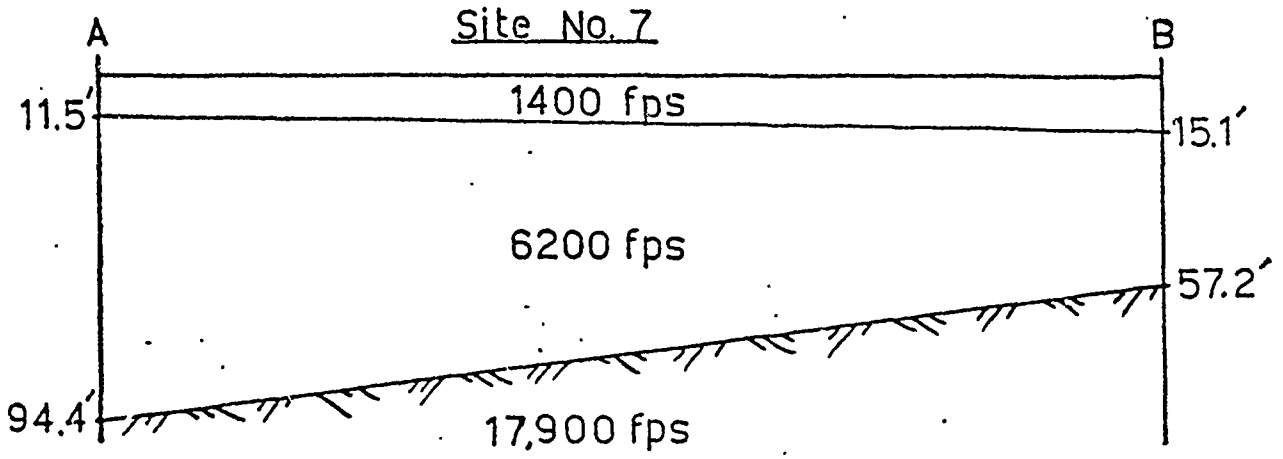
permeablity, and depth and should recieve further testing.

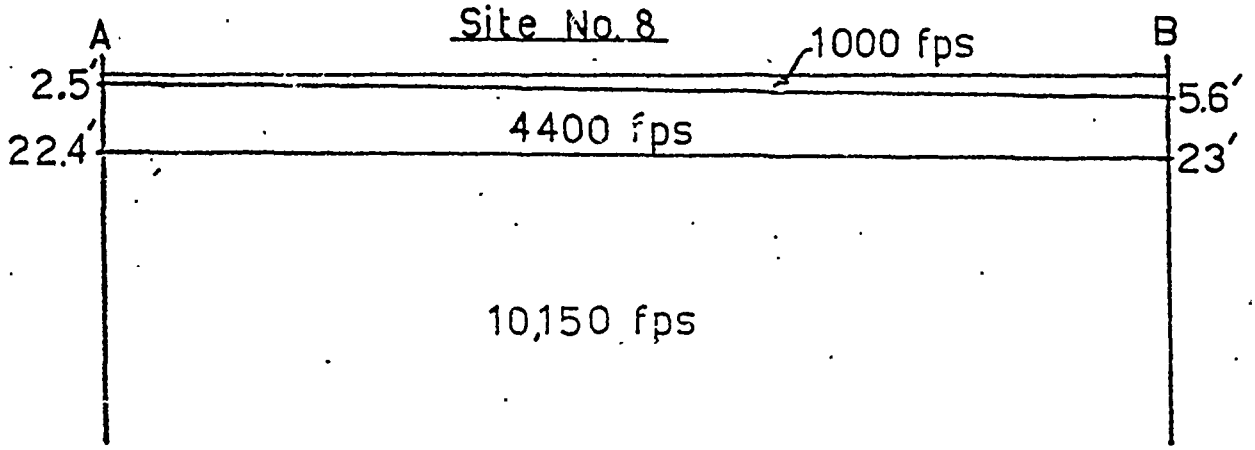
Site number 9 is located in the base of a gravel pit approximately 600 feet north of the intersection of Garitty Road and State Route #155A in the Town of Lee. A layer of loose, dry sands extends to a depth of about 9 to 12 feet where a second denser layer is encountered, This second layer has a velocity indicative of a tight silt-sand-clay mixture or an equally impermeable glacial till and it extends to bedrock at a depth of approximately 25 to 27 feet.

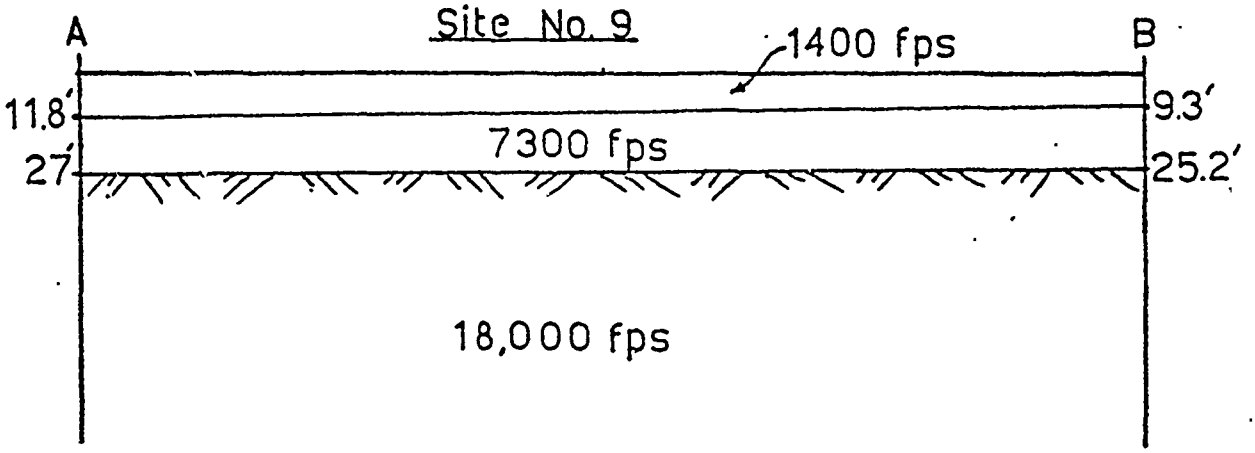
Site number 10 is located approximately 1,800 feet northeast of the intersection of State Routes #155 and #155A in the Town of Lee. Here, approximately 10 to 11 feet of unsaturated silty sands directly overlie bedrock. No further testing is recommended.

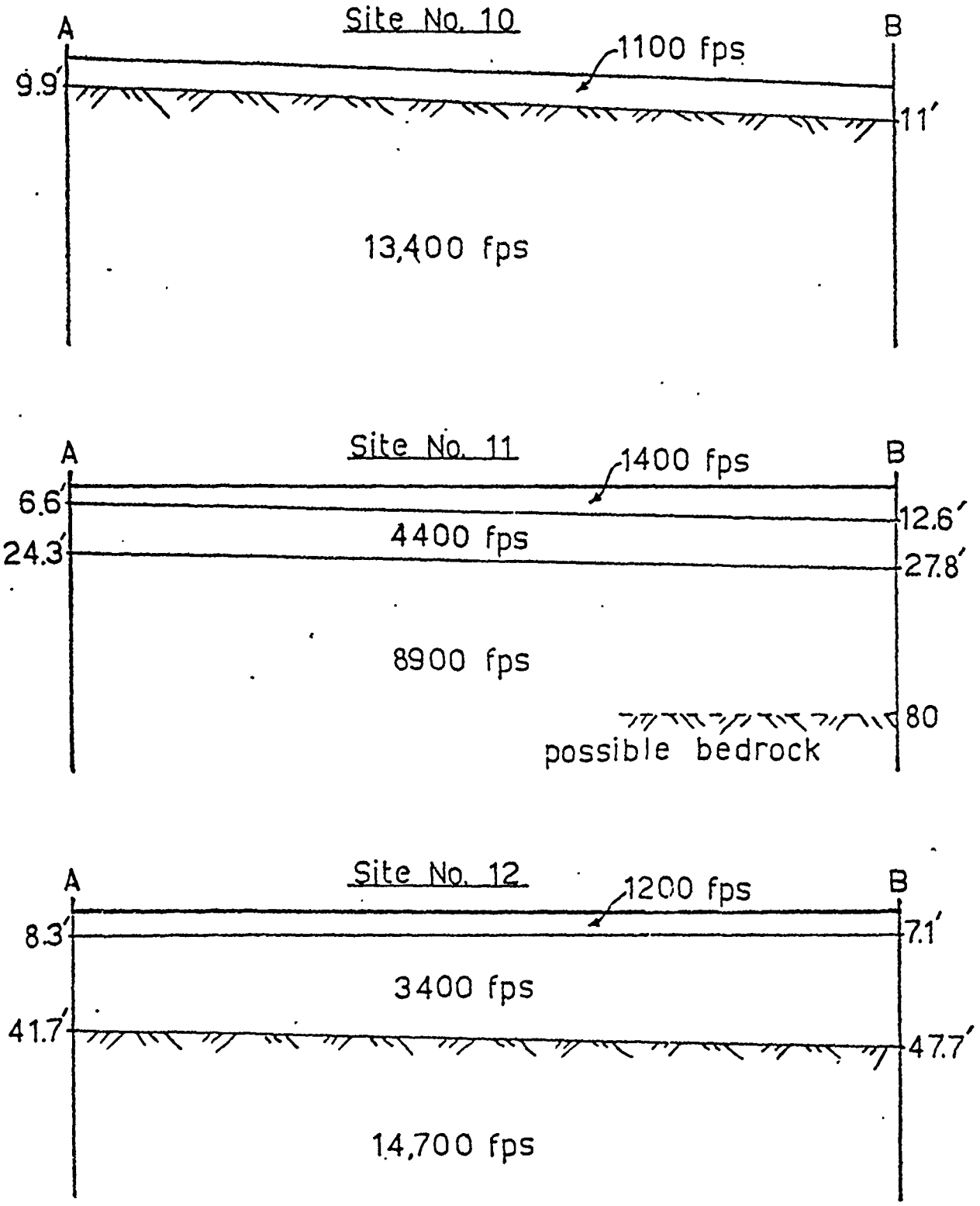
Site number 11 is located about 2,000 feet south of the intersection of Packers Falls Road and State Route #155A in the Town of Lee. At this site between 7 and 13 feet of loose, dry sands overlie a second layer which is about 17 feet thick and has a velocity of 4400 feet per second. The velocity of this layer is indicative of permeable sands and gravels but is not quite high enough to indicate sufficient saturation. The lack of sufficient thickness right at the site coupled with the evidence of permeable sands would seem to warrent further well testing be done slightly to the north or east of this locality.

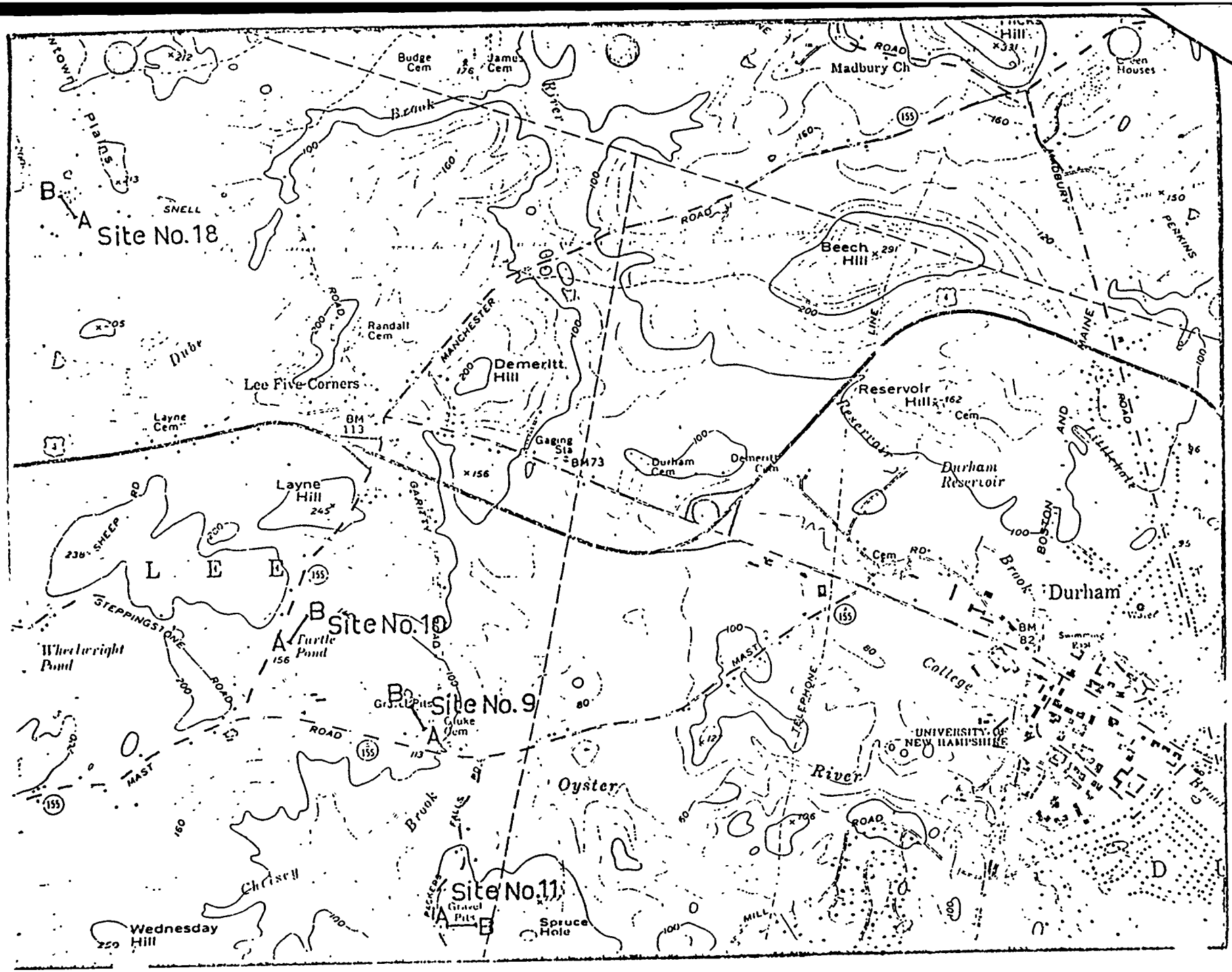
Site number 12 is located about 1,000 feet north of the intersection of Packers Falls Road and Wednesday Road in the Town of Durham. Here, approximately 7 to 8 feet of overburden overlies a second layer which extends to a depth of about 42 to 48 feet where bedrock is encountered. This second layer has a seismic velocity of 3,400 feet per second which is usually indicative of highly permeable sands and gravels but lacking in water content. It is possible that by further testing in this area a location might be found where this apparently permeable material


Site No. 7
A
B
1400 fps
11.5'
15.1'
6200 fps
57.2'
94.4'
17,900 fps


Site No. 8
A
B
1000 fps
2.5'
5.6'
4400 fps
22.4'
23'
10,150 fps


Site No. 9
A
B
1400 fps
11.8'
9.3'
7300 fps
27'
25.2'
18,000 fps


Site No. 10
A
B
1100 fps
9.9'
11'
13,400 fps
Site No. 11
A
B
1400 fps
6.6'
12.6'
4400 fps
24.3'
27.8'
8900 fps
80
possible bedrock
Site No. 12
A
B
1200 fps
8.3'
7.1'
3400 fps
41.7'
47.7'
14,700 fps


Site No. 18
Site No. 10
Site No. 9
Site No. 11
Budge Cem
James Cem
Madbury Ch
Green Houses
Beech Hill
Randall Cem
Demeritt Hill
Lee Five Corners
Layne Cem
Gaging Sta
BM 73
Durham Cem
Demeritt Cem
Reservoir Hill
Durham Reservoir
Layne Hill
Durham
Wheelwright Pond
Turtle Pond
Oyster River
Wednesday Hill
Spruce Hole
Chesley
BM 82
BM 113
Beaver Brook
Bunker Brook
Johnson Brook
Lamprey River
Maine
Manchester
Garrity
Sheep
Stepping Stone
Boston
Perkins
Mast
Telephone
Mill
Packers
Gravel Pits
Cem
Road
Line
Reservoir
Pond
Brook
River
Hill
Plains
Snell
Dube
Lee
Layne
Durham
College
University of New Hampshire
Swimming Pool
Water
Tank
Tower
Houses
Church
Ch
Sch
Pits
Gluke
Gravel Pits
Gravel Pit

LEE

LE-5

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
LEE 12. W17-1. Alt. 80 ft. Lat. 43°05'27". Long. 70°58'46".		
Marine deposits:		
Clay.....	25	25
Bedrock.....	71	96
LEE 13. W18-7. Alt. 105 ft. Lat. 43°07'41". Long. 70°58'17".		
Marine deposits:		
Topsoil.....	4.0	4.0
Clay, light.....	7.0	11.0
Ice-contact deposits:		
Sand, fine to medium, and gravel.....	5.0	16.0
Gravel; a trace of clay.....	6.0	22.0
Sand, fine to medium.....	25.0	47.0
Sand, fine.....	3.0	50.0
Sand, fine to medium, gray.....	19.5	69.5
LEE 14. W18-7. Alt. 83 ft. Lat. 43°07'38". Long. 70°58'31".		
Marine deposits:		
Clay, brown.....	12.0	12.0
Clay, gray.....	21.0	33.0
Sand, fine, gray.....	10.5	43.5
Till:		
Sand, fine, gray, and gravel, fine, sharp.....	15.3	58.8
Refusal.....		58.8
LEE 15. W18-7. Alt. 80 ft. Lat. 43°07'48". Long. 70°58'13".		
Marine deposits:		
Clay, firm.....	7.0	7.0
Sand, fine, silty.....	12.0	19.0
Sand, fine, gray.....	15.5	34.5
Refusal.....		34.5
LEE 16. W18-7. Alt. 100 ft. Lat. 43°07'42". Long. 70°58'26".		
Ice-contact deposits:		
Sand, coarse, and gravel.....	23	23
Clay, gray.....	2	25
Sand, fine, tight.....	12	37
Refusal.....		37
LEE 17. W18-7. Alt. 85 ft. Lat. 43°08'00". Long. 70°58'27".		
Marine deposits:		
Topsoil; some clay.....	8	8
Sand, fine.....	33	41
Ice-contact deposits:		
Sand, coarse, and gravel, sharp.....	4	45
Refusal.....		45
LEE 18. W18-7. Alt. 65 ft. Lat. 43°08'21". Long. 70°58'13".		
Marine deposits:		
Clay, firm, brown.....	28.0	28.0
Clay, gray.....	20.0	48.0
Ice-contact deposits:		
Sand, fine, brown.....	12.0	60.0
Sand, fine, gray.....	14.9	74.9
Refusal.....		74.9
LEE 19. W18-7. Alt. 72 ft. Lat. 43°08'38". Long. 70°58'17".		
Marine deposits:		
Topsoil.....	4	4
Clay, gray.....	17	21
Sand, fine, and clay.....	7	28
Refusal.....		28
LEE 20. W18-7. Alt. 97 ft. Lat. 43°08'58". Long. 70°58'23".		
Marine deposits:		
Topsoil.....	4	4
Clay, gray.....	12	16
Clay and sand, fine.....	12	28
Ice-contact deposits:		
Sand, fine, brown, and gravel, sharp, black.....	4	32
Refusal.....		32
LEE 21. W18-7. Alt. 80 ft. Lat. 43°08'55". Long. 70°58'08".		
Marine deposits:		
Clay.....	25	25
Till:		
Clay and gravel, sharp.....	5	30
Gravel, coarse, black.....	5	35
Refusal.....		35
LEE 22. W17-1. Alt. 80 ft. Lat. 43°08'00". Long. 70°58'30".		
Unconsolidated deposits, undifferentiated:		
Clay and boulders.....	14	14
Refusal.....		14
LEE 23. W18-7. Alt. 113.4 ft. Lat. 43°09'12". Long. 70°59'07".		
Ice-contact deposits:		
Topsoil.....	3.0	3.0
Sand, fine to medium; some gravel.....	8.0	11.0
Sand, fine to medium.....	10.0	21.0
Gravel, medium to coarse, dark brown.....	2.0	23.0
Sand, fine to medium.....	20.0	43.0
Sand, medium to coarse.....	5.0	48.0
Sand, fine; scattered gravel..	7.0	55.0
Sand, fine.....	1.5	56.5
Refusal.....		56.5
LEE 24. W18-7. Alt. 118.02 ft. Lat. 43°09'13". Long. 70°59'04".		
Ice-contact deposits:		
Loam and boulders.....	5	5
Sand, gravel, and boulders....	10	15
Sand, coarse, and gravel.....	33	48
Till:		
Sand, medium to coarse, and gravel, sharp; a little clay	3	51
Refusal.....		51
LEE 25. W18-7. Alt. 110.6 ft. Lat. 43°09'17". Long. 70°59'07".		
Ice-contact deposits:		
Loam and sand.....	1	1
Sand, medium to coarse.....	19	20
Sand, medium, and gravel, sharp.....	11	31
Sand, medium to coarse; a little clay.....	13	44
Sand and gravel, coarse.....	4	48
Refusal.....		48
LEE 26. W18-7. Alt. 111.4 ft. Lat. 43°09'14". Long. 70°59'08".		
Ice-contact deposits:		
Sand and clay.....	2.0	2.0
Sand, medium; a little clay...	25.0	27.0
Clay, firm.....	1.5	28.5
Sand, medium; a little clay...	13.5	42.0
Sand, medium to coarse, and gravel, medium.....	6.0	48.0
LEE 27. W18-9. Alt. 190 ft. Lat. 43°09'33". Long. 71°00'20". Geologist's log. (Log starts at bottom of gravel pit about 10 ft. below original surface.)		
Ice-contact deposits:		
Sand, very fine; some sand, medium; a little silt, brown	25	25
Sand, very fine; a little silt, brown.....	13	38
Refusal.....		38
LEE 28. W17-3. Alt. 100 ft. Lat. 43°05'35". Long. 71°01'00". Geologist's log. (Log starts at bottom of pit about 5 ft below original land surface.)		
Outwash and shore deposits:		
Sand, medium to coarse, brown to buff.....	14	14
Sand, fine to medium, brown to buff.....	6	20
Marine deposits:		
Silt and clay, light gray; some sand in streaks.....	10	30
Silt and clay, blue-gray, plastic; occasional sand streak in it.....	9	39
MADBURY 1. W18-9. Alt. 30.71 ft. Lat. 43°08'59". Long. 70°53'24".		
Ice-contact deposits:		
Sand and gravel.....	40	40
Refusal.....		40
MADBURY 2. W18-9. Alt. 33.01 ft. Lat. 43°09'01". Long. 70°53'20".		
Ice-contact deposits:		
Sand, fine.....	20	20
Sand, coarse, and gravel.....	30	50
Sand, fine.....	5	55
Till:		
Hardpan.....	5	60
Refusal.....		60
MADBURY 3. W18-9. Alt. 31.33 ft. Lat. 43°09'03". Long. 70°53'20".		
Ice-contact deposits:		
Clay.....	5	5
Clay, sandy.....	5	10
Sand, coarse.....	20	30
Sand and gravel.....	16	46
Sand and gravel, gray.....	8	54
Refusal.....		54
MADBURY 4. W18-9. Alt. 32.66 ft. Lat. 43°09'08". Long. 70°53'18".		
Ice-contact deposits:		
Clay.....	8	8
Gravel, fine, sandy.....	35	43
Sand, coarse, and gravel.....	17	60
Refusal.....		60
MADBURY 5. W18-9. Alt. 47.35 ft. Lat. 43°09'14". Long. 70°53'19".		
Marine deposits:		
Topsoil.....	2	2
Clay, gray; some sand.....	51	53
Clay, sandy, fine, grey	5	58
Ice-contact deposits:		
Sand, coarse, brown, and gravel.....	4	62
Refusal.....		62
MADBURY 6. W18-9. Alt. 39.10 ft. Lat. 43°09'20". Long. 70°53'20".		
Marine deposits:		
Topsoil.....	2	2
Clay, gray.....	26	28
Sand and clay.....	14	42
Ice-contact deposits:		
Sand, gray.....	16	58
Sand, coarse, brown, and gravel.....	32	90
Till:		
Hardpan.....	1	91
MADBURY 7. W18-5. Alt. 137.67 ft. Lat. 43°11'20". Long. 70°55'47".		
Ice-contact deposits:		
Gravel, coarse.....	43.8	43.8
MADBURY 8. W18-9. Alt. 105 ft. Lat. 43°09'35". Long. 70°53'45".		
Ice-contact deposits:		
Loam, sandy.....	6	6
Bedrock.....	123	129
MADBURY 9. W18-5. Alt. 105 ft. Lat. 43°10'49". Long. 70°55'54".		
Marine deposits:		
Clay, sandy, fine, brown; some gravel.....	10	10
Clay, sandy, fine, gray.....	74	84
Ice-contact deposits:		
Sand, fine, and gravel	4	88
Refusal.....		88
MADBURY 11. W18-9. Alt. [illegible] Lat. 43°08'59". Long. 70°[illegible].		
Ice-contact deposits:		
Sand, gravel, and cobbles.....	38	38
Bedrock.....		38
MADBURY 12. W18-9. Alt. 32.7 ft. Lat. 43°09'01". Long. 70°53'20".		
Ice-contact deposits:		
Sand, fine.....	20	20
Sand, coarse, and gravel.....	25	45

Water System & Source Study

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Fessenden

Byrne 112 f

STEVEN L. DEAN
Consultant Geologist
Box 487
Parishville, N.Y.
13672

May 15, 1977

Mr. Joseph Murphy
Whitman & Howard, Inc.
45 Williams St.
Wellesley, Massachusetts
02181

Dear Mr. Murphy:

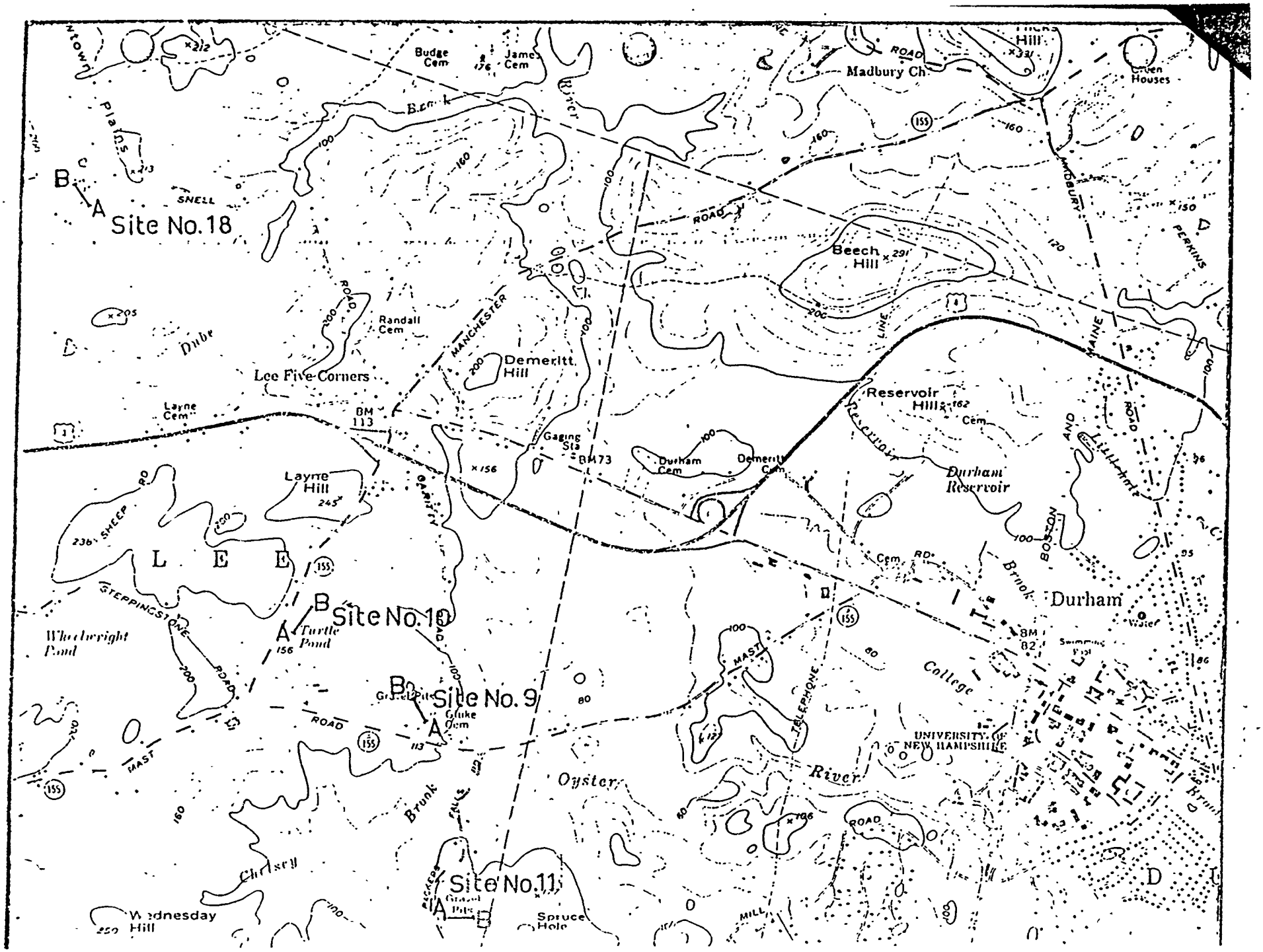
Seismic investigations for the purpose of locating new municipal water sites for the City of Portsmouth, New Hampshire were completed on April 25, 1977.

This report is a complete presentation of my findings. I would be pleased to discuss this report with you at your convenience.

Sincerely yours,

Steven L. Dean

Steven L. Dean


Site No. 18
Site No. 10
Site No. 9
Site No. 11
Budge Cem
James Cem
Madbury Ch
Beech Hill
Reservoir Hill
Randall Cem
Lee Five Corners
Demeritt Hill
Layne Cem
Gaging Sta
BM 113
BM 73
Durham Cem
Demeritt Cem
Layne Hill
Durham Reservoir
Cem
Durham
BM 82
Water
Swimming Pool
Wheelwright Pond
Turtle Pond
Oyster River
College
UNIVERSITY OF NEW HAMPSHIRE
Wednesday Hill
Spruce Hole
Grist Mill
Gravel Pit
Grange Cem
Brunk Falls
Brook
Plains
Snell
Sheep
Steppingstone
Road
Mast
Telephone
Boston
Maine
Manchester
Line
Perkins
Reservoir
Mill
Chrisell
Houses

indicative of loose, permeable sands and gravels which have sufficient saturation to warrent further testing by wells. The permeable material intersects bedrock at about 29 feet at point A and 41 feet at point B. Therefore it would seem wise to drive any test wells in the vicinity of point B or possibly slightly north or east of this point.

Site number 16 is located on the east access road to the abandoned race track beside State Route #152 in the Town of Newmarket. Here, approximately 19 feet of loose, dry sands overlie a second layer with a velocity of 9500 feet per second. This velocity is usually indicative of a very consolidated glacial till or a fractured or weathered bedrock. In either case further investigation by test wells would not be warrented.

Site number 17 is located approximately 1,200 feet east of the intersection of Depot Road and State Route #101 in the Town of Stratham. Here, about 16 to 19 feet of loose, dry sands and gravels directly overlie bedrock. No further investigation is recommended for this site.

Site number 18 is located in a gravel pit about 900 feet west of the intersection of Snell Road and Sheep Road in the Town of Lee. At this site approximately 10 to 15 feet of loose, unsaturated sands and gravels directly overlie bedrock. Again, no further investigation is warrented.

Site number 19 is located in a gravel pit about 1,200 feet south of Winkley Pond in the Town of Barrington. At this location approximately 4 feet of dry sands and gravels overlie a second layer which extends to bedrock at a depth of about 54 feet. This second layer has a seismic velocity of 5,000 feet per second which usually indicates the presence of saturated sands and gravels which are quite permeable. This site should be investigated further by test wells.

MADBURY

MA-1

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

UNITED STATES DEPARTMENT
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
LEE 12. W17-1. Alt. 80 ft. Lat. 43°05'87". Long. 70°58'46".		
Marine deposits:		
Clay	25	25
Bedrock	72	96
LEE 13. W18-7. Alt. 105 ft. Lat. 43°07'41". Long. 70°58'17".		
Marine deposits:		
Topsoil	4.0	4.0
Clay, light	7.0	11.0
Ice-contact deposits:		
Sand, fine to medium, and gravel	5.0	16.0
Gravel; a trace of clay	6.0	22.0
Sand, fine to medium	25.0	47.0
Sand, fine	3.0	50.0
Sand, fine to medium, gray	19.5	69.5
LEE 14. W18-7. Alt. 83 ft. Lat. 43°07'38". Long. 70°58'31".		
Marine deposits:		
Clay, brown	12.0	12.0
Clay, gray	21.0	33.0
Sand, fine, gray	10.5	43.5
Till:		
Sand, fine, gray, and gravel, fine, sharp	15.3	58.8
Refusal		58.8
LEE 15. W18-7. Alt. 80 ft. Lat. 43°07'48". Long. 70°58'13".		
Marine deposits:		
Clay, firm	7.0	7.0
Sand, fine, silty	12.0	19.0
Sand, fine, gray	15.5	34.5
Refusal		34.5
LEE 16. W18-7. Alt. 100 ft. Lat. 43°07'42". Long. 70°58'26".		
Ice-contact deposits:		
Sand, coarse, and gravel	23	23
Clay, gray	2	25
Sand, fine, tight	12	37
Refusal		37
LEE 17. W18-7. Alt. 85 ft. Lat. 43°08'00". Long. 70°58'27".		
Marine deposits:		
Topsoil; some clay	8	8
Sand, fine	33	41
Ice-contact deposits:		
Sand, coarse, and gravel, sharp	4	45
Refusal		45
LEE 18. W18-7. Alt. 65 ft. Lat. 43°08'21". Long. 70°58'13".		
Marine deposits:		
Clay, firm, brown	28.0	28.0
Clay, gray	20.0	48.0
Ice-contact deposits:		
Sand, fine, brown	12.0	60.0
Sand, fine, gray	14.9	74.9
Refusal		74.9
LEE 19. W18-7. Alt. 72 ft. Lat. 43°08'38". Long. 70°58'17".		
Marine deposits:		
Topsoil	4	4
Clay, gray	17	21
Sand, fine, and clay	7	28
Refusal		28
LEE 20. W18-7. Alt. 97 ft. Lat. 43°08'58". Long. 70°58'23".		
Marine deposits:		
Topsoil	4	4
Clay, gray	12	16
Clay and sand, fine	12	28
Ice-contact deposits:		
Sand, fine, brown, and gravel, sharp, black	4	32
Refusal		32
LEE 21. W18-7. Alt. 80 ft. Lat. 43°08'55". Long. 70°58'08".		
Marine deposits:		
Clay	25	25
Till:		
Clay and gravel, sharp	5	30
Gravel, coarse, black	5	35
Refusal		35
LEE 22. W17-1. Alt. 80 ft. Lat. 43°03'00". Long. 70°58'30".		
Unconsolidated deposits, undifferentiated:		
Clay and boulders	14	14
Refusal		14
LEE 23. W18-7. Alt. 113.4 ft. Lat. 43°09'12". Long. 70°59'07".		
Ice-contact deposits:		
Topsoil	3.0	3.0
Sand, fine to medium; some gravel	8.0	11.0
Sand, fine to medium	10.0	21.0
Gravel, medium to coarse, dark brown	2.0	23.0
Sand, fine to medium	20.0	43.0
Sand, medium to coarse	5.0	48.0
Sand, fine; scattered gravel	7.0	55.0
Sand, fine	1.5	56.5
Refusal		56.5
LEE 24. W18-7. Alt. 118.02 ft. Lat. 43°09'13". Long. 70°59'04".		
Ice-contact deposits:		
Loam and boulders	5	5
Sand, gravel, and boulders	10	15
Sand, coarse, and gravel	33	48
Till:		
Sand, medium to coarse, and gravel, sharp; a little clay	3	51
Refusal		51
LEE 25. W18-7. Alt. 110.6 ft. Lat. 43°09'17". Long. 70°59'07".		
Ice-contact deposits:		
Loam and sand	1	1
Sand, medium to coarse	19	20
Sand, medium, and gravel, sharp	11	31
Sand, medium to coarse; a little clay	13	44
Sand and gravel, coarse	4	48
Refusal		48
LEE 26. W18-7. Alt. 111.4 ft. Lat. 43°09'14". Long. 70°59'08".		
Ice-contact deposits:		
Sand and clay	2.0	2.0
Sand, medium; a little clay	25.0	27.0
Clay, firm	1.5	28.5
Sand, medium; a little clay	13.5	42.0
Sand, medium to coarse, and gravel, medium	6.0	48.0
LEE 27. W18-9. Alt. 190 ft. Lat. 43°09'33". Long. 71°00'20". Geologist's log. (Log starts at bottom of gravel pit about 10 ft. below original surface.)		
Ice-contact deposits:		
Sand, very fine; some sand, medium; a little silt, brown	25	25
Sand, very fine; a little silt, brown	13	38
Refusal		38
LEE 28. W17-3. Alt. 100 ft. Lat. 43°05'35". Long. 71°01'00". Geologist's log. (Log starts at bottom of pit about 5 ft. below original land surface.)		
Outwash and shore deposits:		
Sand, medium to coarse, brown to buff	14	14
Sand, fine to medium, brown to buff	6	20
Marine deposits:		
Silt and clay, light gray; some sand in streaks	10	30
Silt and clay, blue-gray, plastic; occasional sand streak in it	9	39
MADBURY 1. W18-9. Alt. 30.71 ft. Lat. 43°08'59". Long. 70°53'24".		
Ice-contact deposits:		
Sand and gravel	40	40
Refusal		40
MADBURY 2. W18-9. Alt. 33.01 ft. Lat. 43°09'01". Long. 70°53'20".		
Ice-contact deposits:		
Sand, fine	20	20
Sand, coarse, and gravel	30	50
Sand, fine	5	55
Till:		
Hardpan	5	60
Refusal		60
MADBURY 3. W18-9. Alt. 31.33 ft. Lat. 43°09'03". Long. 70°53'20".		
Ice-contact deposits:		
Clay	5	5
Clay, sandy	5	10
Sand, coarse	20	30
Sand and gravel	16	46
Sand and gravel, gray	8	54
Refusal		54
MADBURY 4. W18-9. Alt. 32.66 ft. Lat. 43°09'08". Long. 70°53'18".		
Ice-contact deposits:		
Clay	8	8
Gravel, fine, sandy	35	43
Sand, coarse, and gravel	17	60
Refusal		
MADBURY 5. W18-9. Alt. 47.35 ft. Lat. 43°09'14". Long. 70°53'19".		
Marine deposits:		
Topsoil	2	2
Clay, gray; some sand	51	53
Clay, sandy, fine, gray	5	58
Ice-contact deposits:		
Sand, coarse, brown, and gravel	4	62
Refusal		62
MADBURY 6. W18-9. Alt. 39.10 ft. Lat. 43°09'20". Long. 70°53'20".		
Marine deposits:		
Topsoil	2	2
Clay, gray	26	28
Sand and clay	14	42
Ice-contact deposits:		
Sand, gray	16	58
Sand, coarse, brown, and gravel	32	90
Till:		
Hardpan	1	91
MADBURY 7. W18-5. Alt. 137.67 ft. Lat. 43°11'20". Long. 70°55'47".		
Ice-contact deposits:		
Gravel, coarse	43.8	43.8
MADBURY 8. W18-9. Alt. 105 ft. Lat. 43°09'35". Long. 70°53'45".		
Ice-contact deposits:		
Loam, sandy	6	6
Bedrock	123	129
MADBURY 9. W18-5. Alt. 105 ft. Lat. 43°10'49". Long. 70°55'54".		
Marine deposits:		
Clay, sandy, fine, brown; some gravel	10	10
Clay, sandy, fine, gray	74	84
Ice-contact deposits:		
Sand, fine, and gravel	4	88
Refusal		88
MADBURY 11. W18-9. Alt. 31.1 ft. Lat. 43°08'59". Long. 70°53'24".		
Ice-contact deposits:		
Sand, gravel, and cobbles	38	38
Bedrock		38
MADBURY 12. W18-9. Alt. 32.7 ft. Lat. 43°09'01". Long. 70°53'20".		
Ice-contact deposits:		
Sand, fine	20	20
Sand, coarse, and gravel	25	45

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
MADBURY 13. W18-9. Alt. 32.7 ft. Lat. 43°09'08". Long. 70°53'18".		
Ice-contact deposits:		
Clay	8	8
Gravel, fine, sandy	35	43
Sand, coarse, and gravel	17	60
MADBURY 14. W18-9. Alt. 39.0 ft. Lat. 43°09'20". Long. 70°53'20".		
Marine deposits:		
Clay, gray	28	28
Sand and clay	14	42
Ice-contact deposits:		
Sand, gray	16	58
Sand, coarse, brown, and gravel	32	90
Till:		
Hardpan		90
MADBURY 15. W18-5. Alt. 128 ft. Lat. 43°11'54". Long. 70°57'04".		
Marine deposits:		
Topsoil	3	3
Clay and sand, fine	73	76
Refusal		76
MADBURY 16. W18-5. Alt. 130 ft. Lat. 43°11'50". Long. 70°56'59".		
Marine deposits:		
Topsoil	1	1
Clay, sand, fine; some gravel	19	20
Clay, sand, fine	42	62
Refusal		62
MADBURY 17. W18-5. Alt. 138 ft. Lat. 43°11'58". Long. 70°56'43".		
Marine deposits:		
Topsoil	2	2
Sand, fine	20	22
Clay	54	76
Ice-contact deposits:		
Sand and gravel	6	82
Sand, fine	33	115
Refusal		115
MADBURY 18. W18-5. Alt. 105 ft. Lat. 43°10'49". Long. 70°55'50".		
Marine deposits:		
Sand, fine, gray	21.0	21.0
Clay, gray	43.0	64.0
Clay, sandy, fine, gray	26.5	90.5
MADBURY 19. W18-5. Alt. 105 ft. Lat. 43°10'51". Long. 70°56'05".		
Marine deposits:		
Topsoil	1.5	1.5
Clay, sandy, fine, brown	13.5	15.0
Ice-contact deposits:		
Sand, coarse, brown, and gravel	18.0	33.0
Sand, fine, gray	11.0	44.0
Refusal		44.0
MADBURY 20. W18-5. Alt. 118 ft. Lat. 43°10'52". Long. 70°56'11".		
Marine deposits:		
Sand, fine, brown, and clay	62	62
Ice-contact deposits:		
Sand, fine, gray, and gravel	8	70
Till:		
Hardpan, gray	6	76
Refusal		76
MADBURY 21. W18-6. Alt. 92 ft. Lat. 43°10'24". Long. 70°54'47".		
Marine deposits:		
Clay	43	43
Ice-contact deposits:		
Sand, coarse	12	55
Refusal		55
MADBURY 22. W18-6. Alt. 100 ft. Lat. 43°10'18". Long. 70°54'48".		
Marine deposits:		
Sand and clay	3	3
Clay	52	55
Ice-contact deposits:		
Sand, fine	19	74
Refusal		74
MADBURY 23. W18-6. Alt. 98 ft. Lat. 43°10'18". Long. 70°54'40".		
Marine deposits:		
Clay	34	34
Ice-contact deposits:		
Sand, fine	21	55
Refusal		55
MADBURY 24. W18-6. Alt. 110 ft. Lat. 43°10'13". Long. 70°54'53".		
Ice-contact deposits:		
Sand and gravel	25	25
Sand and gravel, rusty-colored	5	30
Sand and gravel	15	45
Refusal		45
MADBURY 25. W18-6. Alt. 115 ft. Lat. 43°10'13". Long. 70°54'48".		
Ice-contact deposits:		
Sand, fine	52	52
Refusal		52
MADBURY 26. W18-6. Alt. 110 ft. Lat. 43°10'14". Long. 70°54'34".		
Marine deposits:		
Loam, sandy, and clay, sandy	4	4
Clay	22	26
Ice-contact deposits:		
Sand, coarse, and clay	11.5	37.5
Refusal		37.5
MADBURY 27. W18-6. Alt. 160 ft. Lat. 43°10'08". Long. 70°54'24".		
Ice-contact deposits:		
Topsoil	6	6
Sand and gravel	17	23
Gravel, coarse	22	45
Refusal		45
MADBURY 28. W18-6. Alt. 135 ft. Lat. 43°10'04". Long. 70°54'28".		
Ice-contact deposits:		
Topsoil	6	6
Sand, fine, gray	32	38
Sand, medium to fine, brown	20	58
Sand and gravel	13	71
Sand, fine, gray	10	81
Refusal		81
MADBURY 29. W18-9. Alt. 110 ft. Lat. 43°09'54". Long. 70°54'06".		
Marine deposits:		
Topsoil	2	2
Clay	22	24
Ice-contact deposits:		
Clay, sandy	49	73
Sand, fine	4.8	77.8
Refusal		77.8
MADBURY 30. W18-9. Alt. 98 ft. Lat. 43°09'52". Long. 70°54'01".		
Outwash and shore deposits:		
Sand	20	20
Marine deposits:		
Clay	50	70
Ice-contact deposits:		
Silt, sandy	28	98
Refusal		98
MADBURY 31. W18-9. Alt. 90 ft. Lat. 43°09'50". Long. 70°54'04".		
Outwash and shore deposits:		
Topsoil	1	1
Clay and sa	31	32
Ice-contact deposits:		
Sand, fine	61	93
Refusal		93
MADBURY 32. W18-9. Alt. 78 ft. Lat. 43°09'46". Long. 70°54'07".		
Outwash and shore deposits:		
Topsoil	1	1
Sand, fine	23	24
Marine deposits:		
Clay, blue	32	56
Ice-contact deposits:		
Sand, fine	35	91
Refusal		91
MADBURY 33. W18-9. Alt. 80 ft. Lat. 43°09'43". Long. 70°54'12".		
Marine deposits:		
Topsoil	1	1
Clay, yellow, and sand, fine	26	27
Ice-contact deposits:		
Gravel and sand	17	44
Gravel	10	54
Gravel and sand, coarse	16	70
Refusal		70
MADBURY 34. W18-9. Alt. 60 ft. Lat. 43°09'40". Long. 70°54'11".		
Marine deposits:		
Topsoil	3	3
Clay	21	24
Clay, sandy	20	44
Ice-contact deposits:		
Sand, medium, gray	12	56
Sand and gravel, gray	2	58
Refusal		58
MADBURY 35. W18-9. Alt. 40 ft. Lat. 43°09'37". Long. 70°54'11".		
Marine deposits:		
Clay, gray	35	35
Clay, sandy	9	44
Ice-contact deposits:		
Sand, fine, brown	12	56
Sand, coarse, gray, and gravel	11	67
Refusal		67
MADBURY 36. W18-9. Alt. 90 ft. Lat. 43°09'44". Long. 70°54'17".		
Outwash and shore deposits:		
Sand, fine	24	24
Marine deposits:		
Clay	18	42
Refusal		42
MADBURY 37. W18-9. Alt. 82 ft. Lat. 43°09'43". Long. 70°54'20".		
Marine deposits:		
Topsoil	2	2
Clay	12	14
Clay, sandy	16	30
Till:		
Hardpan	7	37
Refusal		37
MADBURY 38. W18-9. Alt. 40 ft. Lat. 43°09'43". Long. 70°54'25".		
Marine deposits:		
Topsoil	1	1
Clay, sandy	26	27
Refusal		27
MADBURY 39. W18-9. Alt. 40 ft. Lat. 43°09'38". Long. 70°54'19".		
Marine deposits:		
Clay, sandy	44	44
Clay, sand, and gravel	6	50
Ice-contact deposits:		
Sand, coarse, and gravel	18	68
Sand, fine	14	82
Refusal		82
MADBURY 40. W18-9. Alt. 40 ft. Lat. 43°09'38". Long. 70°54'17".		
Marine deposits:		
Topsoil	1	1
Clay	36	37
Clay, sandy	5	42
Refusal		42
MADBURY 41. W18-9. Alt. 68 ft. Lat. 43°09'38". Long. 70°54'23".		
Marine deposits:		
Topsoil	2	2
Clay	23	25
Ice-contact deposits:		
Sand, gravel, and clay	14	39
Refusal		39
MADBURY 42. W18-9. Alt. 55 ft. Lat. 43°09'40". Long. 70°54'32".		
Marine deposits:		
Topsoil	1	1
Clay	11	12
Clay, sandy	23	35
Refusal		35

"WORLD'S LA... ...DEVELOPERS"

Layne - NEW ENGLAND COMPANY
A BRANCH OF LAYNE-NEW YORK COMPANY, INC.
WATER WELLS • WELL PUMPS • WATER TREATMENT
ASSOCIATED LAYNE WATER SUPPLY COMPANIES OPERATE THROUGHOUT THE COUNTRY

15 RYDER STREET
Arlington, Mass. 02174
PHONE 617-648-5300

6 May 1971

Water Department
Portsmouth
New Hampshire

Attention: Joseph Rehler
Reference: Ground Water Supply

Gentlemen:

This will confirm our discussions of 4 May, concerning conditions observed at your wells and suggested short and long term improvement programs.

As we see it, the following is a summary of your wells and the approximate amount of yield you could rely on for at least ninety days during the summer months.

PORTSMOUTH #1
This well is old. Probably installed in 1921. The well is equipped to deliver 600 GPM, although this far exceeds its current capacity. Old records show that in 1930, a reliable yield of at least 400,000 GPD was obtained from this site, and it may well be that higher yields could have been maintained, but were not needed. The current safe capacity of this well is----------.17 MGD

GREENLAND #1
This well has a sand problem which limits the useful capacity of the well. It would appear that when the pumping level approximates 44', the well begins to pump sand. This well was originally equipped at the rate of 600 GPM or so, but we doubt that you can rely on it during summer pumpage for more than----------.65 MGD

MADBURY 1, 2 and 3
These are in a limited aquifer and have the physical capacity to pump much more water than can be sustained. The best estimates are that approximately 150 million gallons are contained in storage when the aquifer is full in the springtime. Also, the aquifer is recharged from the holding reservoir near wells 1 and 2. By using storage and recharge, we believe the three wells could yield for ninety days, during the summer months----- 1.3 MGD

MADBURY #4
This well appears to be in a separate aquifer than wells 1, 2 and 3 and is probably separated by the rock ridge,

NEWFIELDS

NF-1

REPORT

ON

MUNICIPAL WATER SYSTEM

NEWFIELDS, NEW HAMPSHIRE

SEPTEMBER 1976

WATER EXTENSION COMMITTEE

NORMAN ROLLINS, CHAIRMAN
ALFRED CONNORS JR.
MARY B. HALLINAN—772 4687
ARNOLD KENNESON, JR. 772-3906
THEODORE S. NELSON
ROBERT E. NIXON
DAVID H. PEASLEE
ERNEST CHICK
REGINALD SHARP

S·E·A CONSULTANTS INC.
ENGINEERS/PLANNERS
BOSTON, MASS./ ROCHESTER N.H.

LOG OF TEST WELL

Newfields, New Hampshire

SITE: Mr. Smith's Farm Near Station

Date: October 7, 1974

Size: 2-1/2" Diameter

Test Hole #1	Refusal at 15 ft.
Test Hole #1A	Refusal at 15 ft.
Test Hole #1B	Refusal at 15 ft.

THIS IS A TRUE COPY OF THE TEST BY; D. L. Maher Co.

Driller: C. Mackey

Helper: J. Duran

LOG OF TEST WELL

Newfields, New Hampshire

SITE: Mr. Woodman's Land

Date: October 7, 1974

Size: 2-1/2" Diameter

Test Hole #2	Refusal at 15 ft.
Test Hole #2A	0 - 4' Loam
	4'-28' Fine brown sand, silt gravel and clay (tight material)
	30' Refusal
Test Hole #2B	Refusal at 23 ft.

THIS IS A TRUE COPY OF THE TEST BY: D. L. Maher Co.

Driller: C. Mackey

Helper: J. Duran

LOG OF TEST WELL

Newfields, New Hampshire

SITE: Mr. Peterson's Land

Date: October 8, 1974

Size: 2-1/2" Diameter

Test Hole #3	Refusal at 21 ft.			
Test Hole #3A	Refusal at 21 ft.			
Test Hole #3B	0	-	10'	Peat
	10'	-	18'	Pure, grey clay
	18'	-	24'	Fine gray sand, some sharp gravel mixed with clay (tight material)
	24'			Refusal

THIS IS A TRUE COPY OF THE TEST BY: D. L. Maher Co.

Driller: C. Mackey

Helper: J. Duran

LOG OF TEST WELL

NEWFIELDS, NEW HAMPSHIRE

DATE: January 29 - 31, 1975

SIZE: 2-1/2" Diameter

Test Hole #4 — Rear gravel pit

0 - 9' brn. sand-clay
9 - 33' hardpan
33' refusal

Test Hole #5 — Rear of cemetary

0 - 28' clay
28' - 29' gravel & clay
29' refusal

Test Hole #6 — Edge woods rear of Mr. Hanson's cornfield

0 - 16' clay, sharp gravel
16' ledge

Test Hole #7 — In wooded low area near stream on Mr. Bond's property

0 - 27' clay
27' - 33' gray sand, gravel
33' ledge

Test Hole #8 — North Rte 87 at Parting Brook

0 - 30' fine sand clay
30' ledge

THIS IS A TRUE COPY OF THE TEST BY: D.L. Maher Co.

DRILLER: C. Kelly

HELPER: M. Proctor

NEWFIELD-8

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Town of Newfields Test No. 3-3A-3B

Address

Well located on Mr. Peterson's Land in County, State of N.H.

Date Drilling started 10-8-74 Date Test Hole Completed 10-8-74

Total depth to bottom of Well Noted below Diameter Test Hole 2½"

Water stands when not pumping 1' feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#3 hole		Refusal at 21'
#3A hole		Refusal at 21'
#3B hole		Refusal at 24'
#3B hole		0' to 10' Sand
		10' to 18' Brown gray clay
		18' to 24' Brown gray sand some shale gravel mixed with clay (Light material)

Did Well Clear Up? Didn't pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

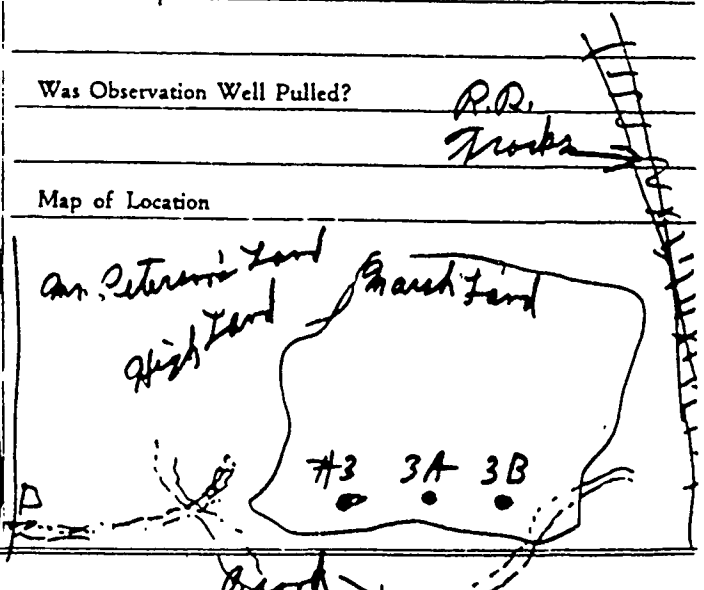
Time Required for Recovery?

Was Well Pulled? Yes

Observation Pipe What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helpers J. Duran

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Town of Newfields Test No. 2-2A-2B

Address

Well located on Woodman Land in County, State of N.H.

Date Drilling started 10-7-74 Date Test Hole Completed 10-8-74

Total depth to bottom of Well Noted below Diameter Test Hole 2½"

Water stands when not pumping 6' feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#2 hole		Refusal at 15'
#2A hole		Refusal at 30'
#2B hole		Refusal at 23'
#2A hole		0' to 4' Loam 4' to 28' Fine fine sand clay gravel and clay (Tight Artesian)

Did Well Clear Up? Without pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

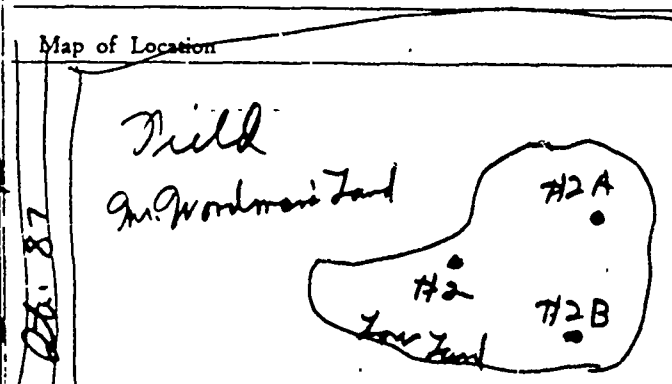
Time Required for Recovery?

Was Well Pulled? Yes

Observation Hole What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test Stand Pipe

Driller C. Mackey

Helpers J. Liman

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Town of Newfields Test No. 1-1A-1B

Address

Well located at Mr. Smith's Farm near station in ..... County, State of N. H.

Date Drilling started 10-7-74 Date Test Hole Completed 10-7-74

Total depth to bottom of Well 15' Diameter Test Hole 2½"

Water stands when not pumping ..... feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#1	hole	Refusal at 15'
#1A	hole	Refusal at 15'
#1B	hole	Refusal at 15'

Did Well Clear Up? Didn't pump

How Long?

Time Pumped?

Drawdown ft. in.

Capacity

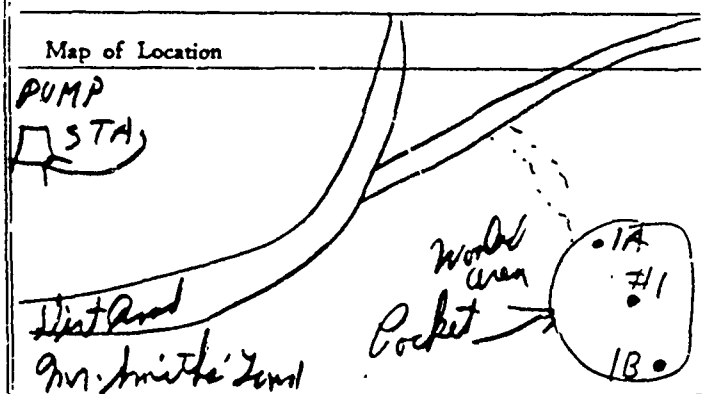
Time Required for Recovery?

Was Well Pulled? Yes

Observation Well What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test R.A. Hooks

Driller C. Mackey

Helpers J. Duran

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for NEWFIELD N.H. Test No. K-5

Address OFF RT 87 HICKS LAND

Well located at ..... in ..... County, State of .....

Date Drilling started 1-31-75 Date Test Hole Completed 1-31-75

Total depth to bottom of Well 30' Diameter Test Hole 2½

Water stands when not pumping — feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	30	FINE SAND CLAY
		LEDGE AT 30'

Did Well Clear Up? —

How Long? —

Time Pumped? —

Drawdown — Ft. In.

Capacity —

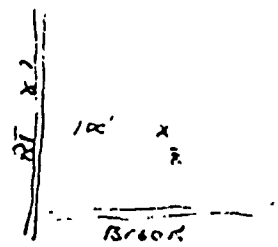
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test .....

Driller C. KELLY

Helpers M. PROCTOR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for NEWFIELD NH Test No. K-4

Address OFF RT 87

Well located at ..... in ..... County, State of .....

Date Drilling started 1-30-75 Date Test Hole Completed 1-30-75

Total depth to bottom of Well 33' Diameter Test Hole 2½"

Water stands when not pumping 3' feet 2" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	27'	Clay
27'	33'	Gray Sand Gravel
		HIT LEDGE
		33'

Did Well Clear Up? YES

How Long? 4 Hrs

Time Pumped? 8 Hrs

Drawdown — Ft. — In.

Capacity 20 GPM 25" VAC

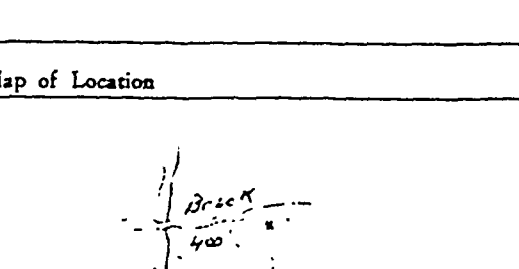
Time Required for Recovery?

Was Well Pulled? NO

Observation W/C What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test SET SINGLE 40 SLOT SCREEN AT 33'

Driller C. KELLY

Helpers M. PROCTOR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for NEWFIELD NH Test No. K-3

Address OFF RT 168

Well located at ..... in ..... County, State of .....

Date Drilling started 1-29-75 Date Test Hole Completed 1-30-75

Total depth to bottom of Well 16' Diameter Test Hole 2 1/2"

Water stands when not pumping 1 feet ..... inches from the surface of the ground

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	16	CLAY SHALE GRAVEL
		TO LEDGE

Did Well Clear Up? —

How Long? —

Time Pumped? —

Drawdown — Ft. In.

Capacity —

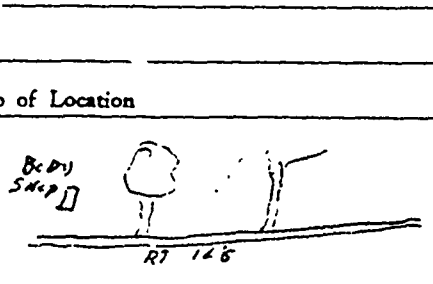
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test .....

Driller C KELLY

Helpers M RECTOR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for NEW FIELD N H Test No. K-2

Address OFF RT 108

Well located at ..... in ..... County, State of .....

Date Drilling started 1-29-75 Date Test Hole Completed 1-29-75

Total depth to bottom of Well 29' Diameter Test Hole 2 1/2"

Water stands when not pumping 17' feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	28'	CLAY
28'	29'	GRAVEL TO CLAY
		HIT LEDGE AT 29'

Did Well Clear Up?

How Long?

Time Pumped? —

Drawdown — Ft. In.

Capacity —

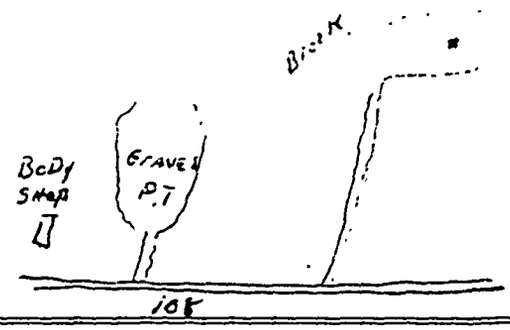
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test .....

Driller C. KELLY

Helpers M. PROCTOR

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for NEWFIELD N.H. Test No. K-1

Address OFF RT 108

Well located at ..... in ..... County, State of .....

Date Drilling started 1-28-75 Date Test Hole Completed 1-29-75

Total depth to bottom of Well 33' Diameter Test Hole 2½"

Water stands when not pumping — feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	9'	BROWN SAND
		CLAY
9'	33'	HARDPAN
		LEDGE AT 33'

Did Well Clear Up? —

How Long? —

Time Pumped? —

Drawdown — Ft. In.

Capacity —

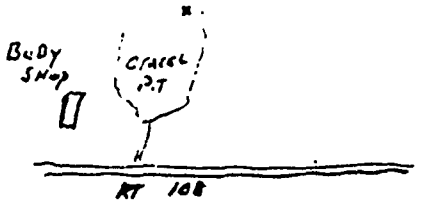
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test .....

Driller C. KELLY

Helpers M. PROCTOR

NEWTON

NE-1

TEST WELL RECORD

Layne NEW YORK CO., INC.

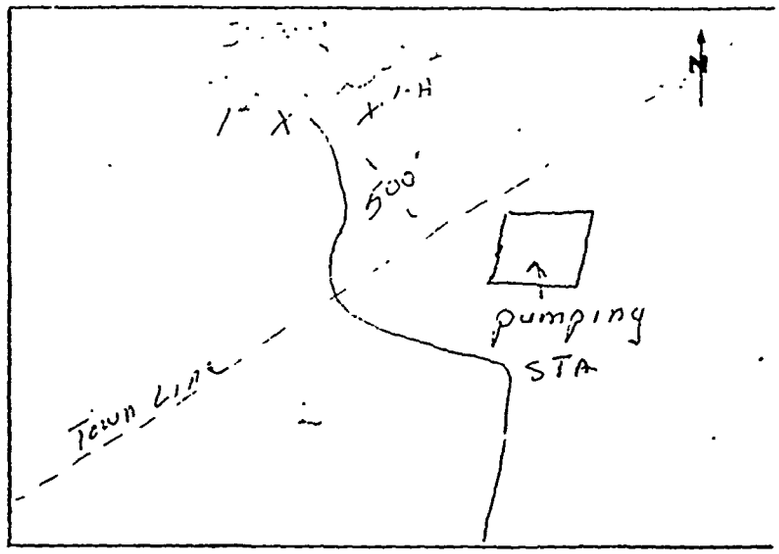
DATE 1-13-77 TEST WELL NO. 1 + 1-A

FOR Newton N.H.

LOCATION Gravel pit by mass Dump Sta. Area 1

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

well 1#

16'

tar & pan + Solder's

well 8# 1-A

5' move

16'

Solder's

TOTAL WELL DEPTH 16' 16'

BOTTOM OF TEST HOLE

REMARKS

wells out.

OBS. WELL: NO. _____ DISTANCE _____ DEPTH _____

NO. _____ DISTANCE _____ DEPTH _____

WELL SCREEN: TYPE _____ LENGTH _____ OPENING _____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION: _____

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL

STATIC LEVEL _____ ORIFICE _____ AIR LINE LENGTH _____

QUALITY: PH _____ HARD. _____ IRON _____ MANGANESE _____

ODOR _____ TASTE _____ LAB. SAMPLE _____

PIPE LEFT: IN WELL _____ FT., IN OBS. WELL _____ FT.

SCREEN LEFT: IN WELL _____ FT., IN OBS. WELL _____ FT.

PIPE: TO BE LEFT _____ TO BE PULLED LATER _____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

R. Pinardi

FOR LAYNE - NEW YORK CO., INC.

NEWMARKET

NM-1

U Study

NED - Fiss

Fossiology

Byrne 1

STEVEN L. DEAN
Consultant Geologist
Box 487
Parishville, N.Y.
13672

May 15, 1977

Mr. Joseph Murphy
Whitman & Howard, Inc.
45 Williams St.
Wellesley, Massachusetts
02181

Dear Mr. Murphy:

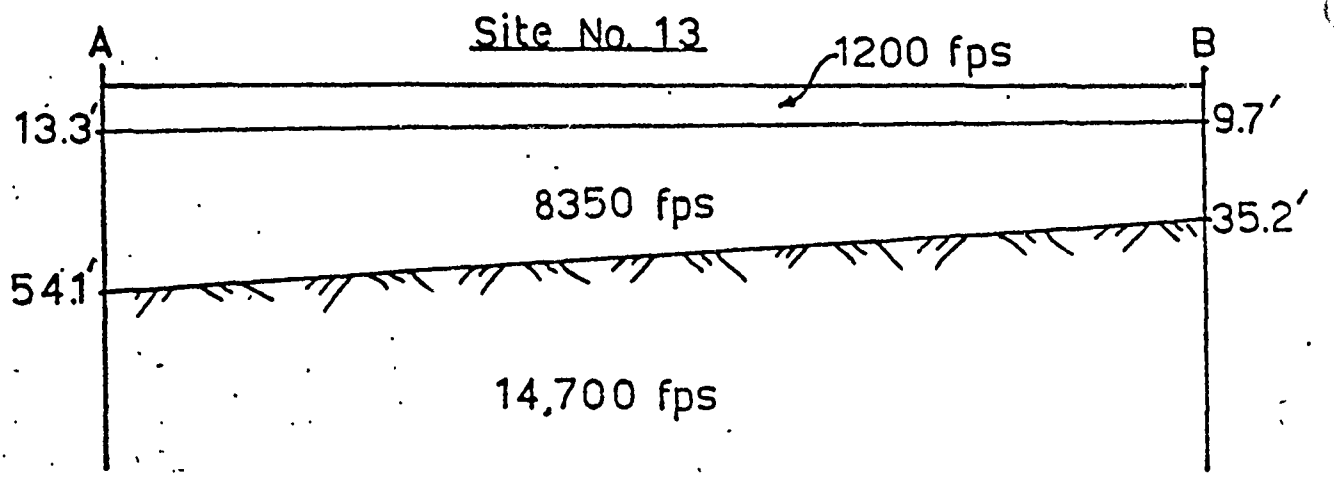
Seismic investigations for the purpose of locating new municipal water sites for the City of Portsmouth, New Hampshire were completed on April 25, 1977.

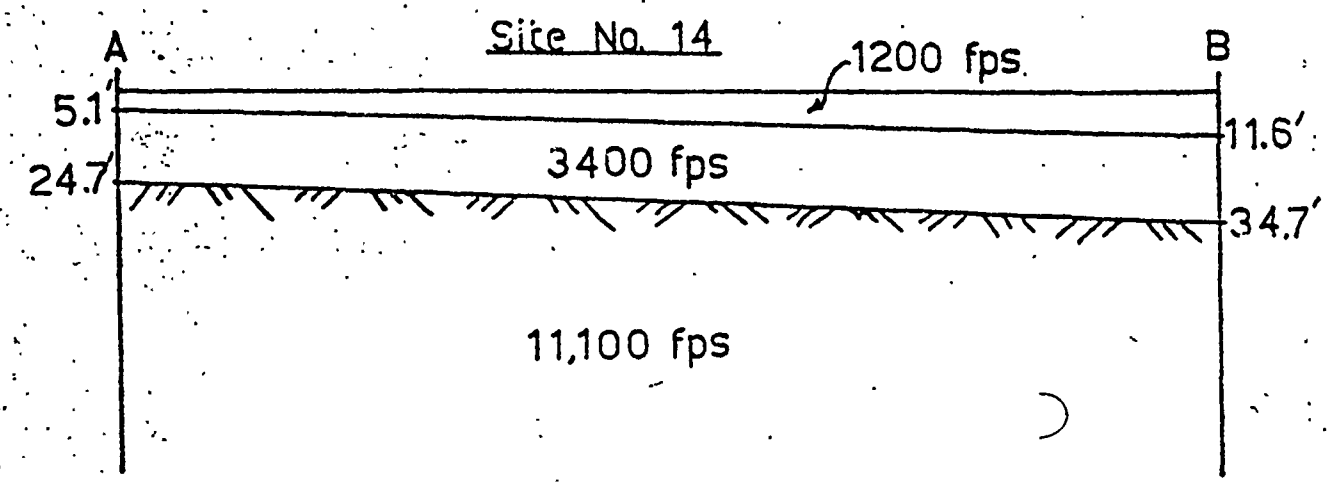
This report is a complete presentation of my findings. I would be pleased to discuss this report with you at your convenience.

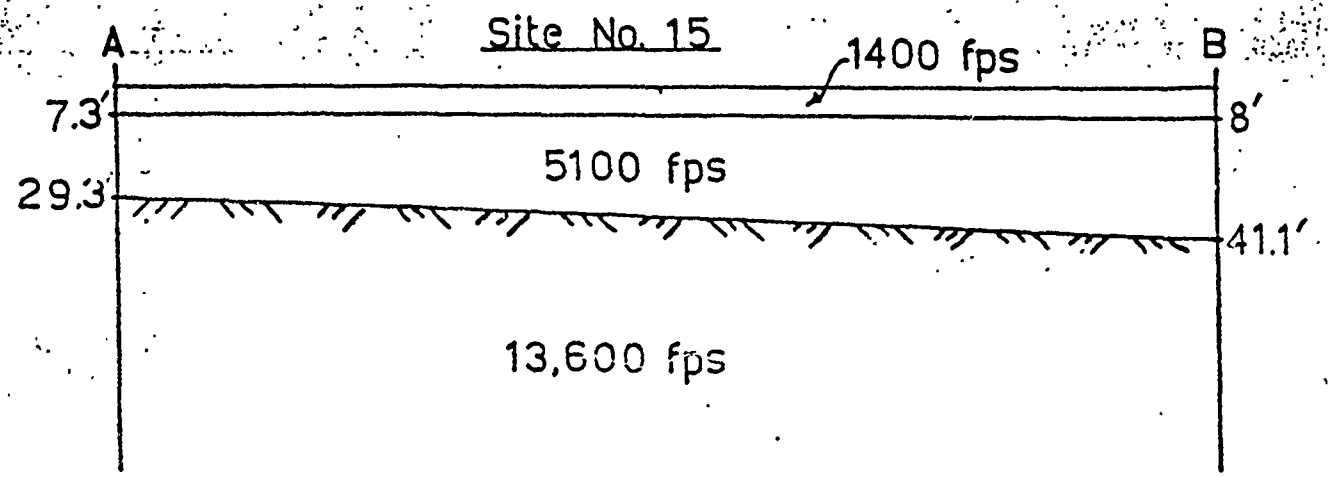
Sincerely yours,

Steven L. Dean

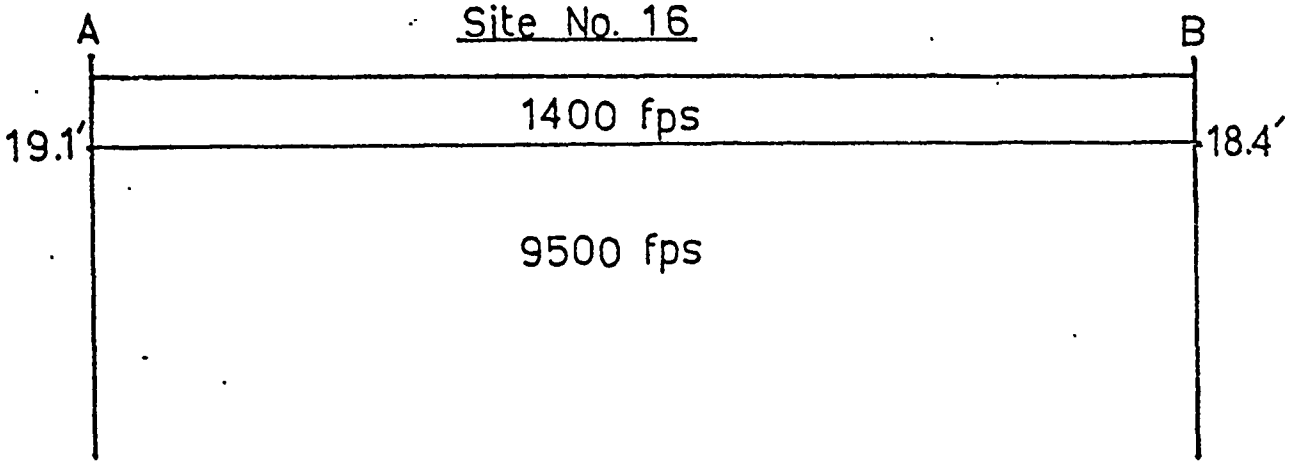
Steven L. Dean


Site No. 13
A
B
1200 fps
13.3'
9.7'
8350 fps
35.2'
54.1'
14,700 fps

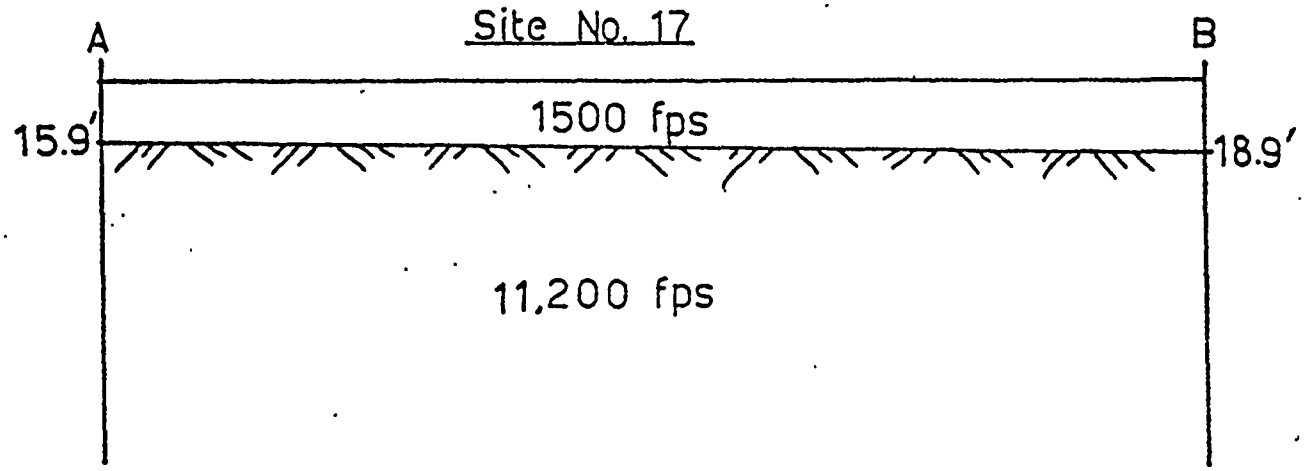

Site No. 14
A
B
1200 fps.
5.1'
11.6'
3400 fps
24.7'
34.7'
11,100 fps


Site No. 15
A
B
1400 fps
7.3'
8'
5100 fps
29.3'
41.1'
13,600 fps

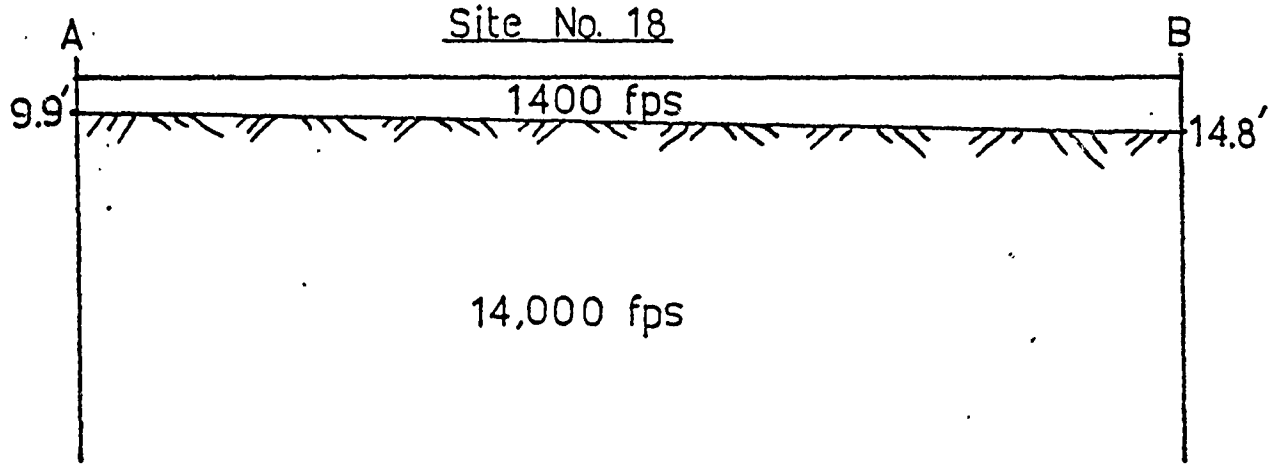
Site No. 16

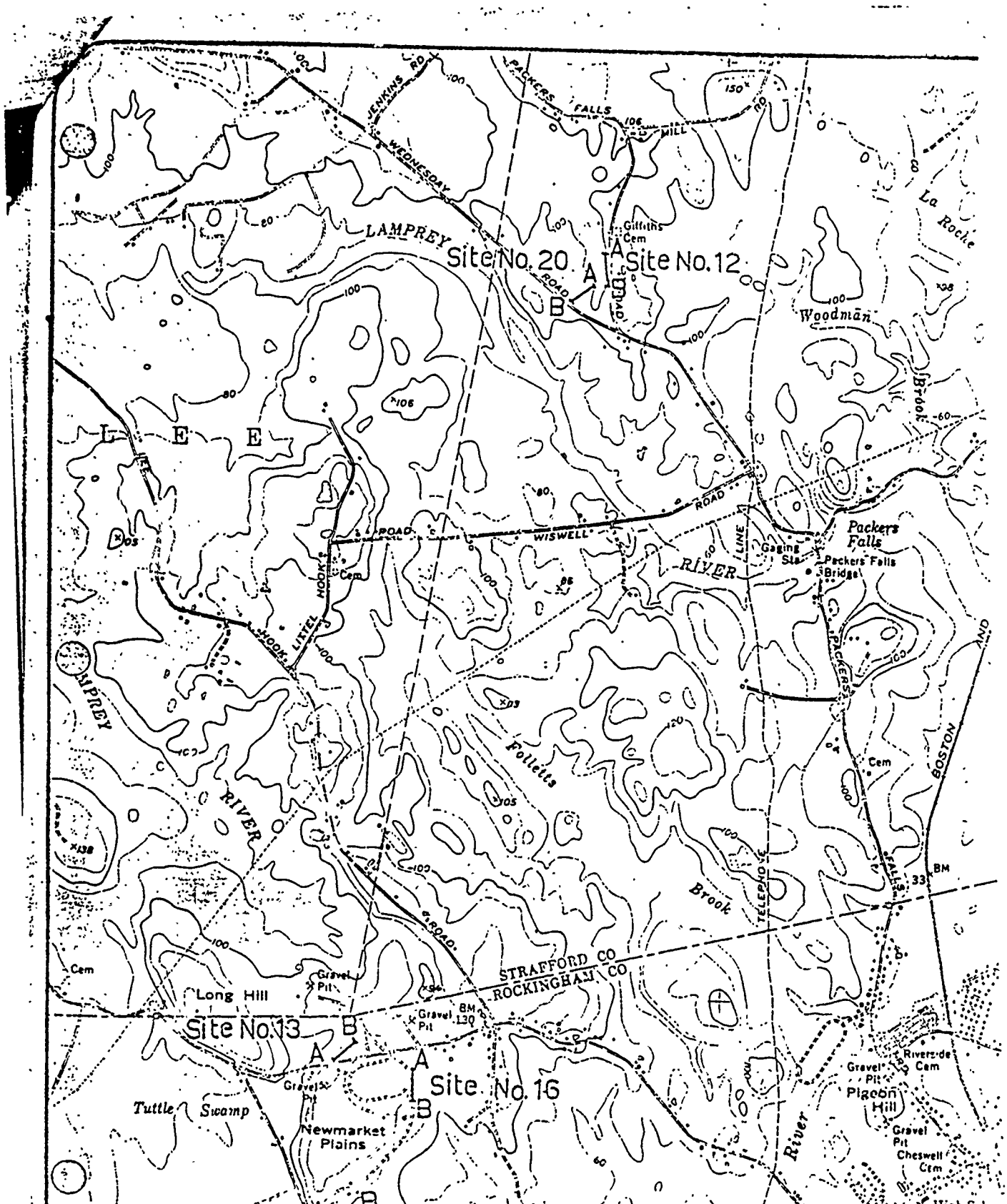


Site No. 17



Site No. 18




Site No. 20
Site No. 12
Site No. 13
Site No. 16
Site No. 14
LAMPREY
RIVER
Packers Falls
Gaging Sta
Packers Falls Bridge
Woodman
Brook
La Roche
Folletts
Brook
Long Hill
Tuttle Swamp
Newmarket Plains
Pigeon Hill
Gravel Pit
Cem
Gifford Cem
Cheswell Cem
High Sch
Bk
Moonlight
STRAFFORD CO
ROCKINGHAM CO
BM 33
BM 130
Jenkins Rd
Wednesday
Packers Falls Mill
Wiswell Road
Hook Lintel
Boston and
Telephone
Riverside
Rd
Newmarket

R. E. CHAPMAN CO.

OAKDALE, MASSACHUSETTS

DIAL 835-3727 — 835-3221

FEB 9 1966

Job Location Newmarket, N.H.

Date 12/23/65 Hole No. 9 - 65

Started ..... Finished .....

LOG OF HOLE

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in Inches
		one of a group		
		Stopped at 42 ft.		

Used 42 ft. ..... inches of casing

Well rated at 70 G.P.M. ..... " Vacuum

Water level is ..... ft. below ground level

Remarks .....

Foreman J. Marco

R. E. CHAPMAN CO.

OAKDALE, MASSACHUSETTS

DIAL 835-3727 — 835-3221

FEB 9 1966

Job Location Newmarket, N.H.

Date 12/27/65 Hole No. 10

Started ..... Finished .....

LOG OF HOLE

Depth From Ground Surface	Depth To	CLASSIFICATION of MATERIALS	No. of 30" blows on spoon	Penetration of Spoon in Inches
0'	26'	fine brown sand		
26'	37'	medium brown sand & gravel		
		Stopped at 37 ft		
		O.B.S. for group		
		300' ft south of group		

Used 37 ft. ..... inches of casing

Well rated at ..... G.P.M. ..... " Vacuum

Water level is 21' ..... ft. below ground level

Remarks open end

Foreman J. Marco

R. E. CHAPMAN CO.

OAKDALE, MASSACHUSETTS

DIAL 835-3727 — 835-3221

Job Location Newmarket, N.H. 9 196

Date 12/23/65 Hole No. 6-65

Started ..... Finished .....

LOG OF HOLE

Depth From	Depth To	CLASSIFICATION of MATERIALS	No. of 50" blows on spoon	Penetration of Spoon in inches
Ground Surface				
		one of a group		
		Stopped at 42 ft.		

ed 42 ft. ..... inches of casing

ll rated at 70 G.P.M. 17 " Vacuum

ter level is ..... ft. below ground level

narks .....

eman J. Mace

R. E. CHAPMAN CO.

OAKDALE, MASSACHUSETTS

DIAL 835-3727 — 835-3221

Job Location Newmarket, N.H. 9 196

Date 12/23/65 Hole No. 7-65

Started ..... Finished .....

LOG OF HOLE

Depth From	Depth To	CLASSIFICATION of MATERIALS	No. of 50" blows on spoon	Penetration of Spoon in inches
Ground Surface				
		One of a group		
		Stopped at 42 ft		

Used 42 ft. ..... inches of casing

Well rated at 70 G.P.M. ..... " Vacuum

Water level is ..... ft. below ground level

Remarks .....

Foreman J. Mace

NORTH HAMPTON

NH-1

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton N H Test No. E 12

Address

Well located at Hampton in County, State of

Date Drilling started May 18-61 Date Test Hole Completed May 18-61

Total depth to bottom of Well 53'4 Diameter Test Hole 2½"

Water stands when not pumping flowing feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	20.3	Top Clay
20.3	25'4	Brown Gravel
25.4	30'6	fine Brown sand
30'6	36 5	Silky Brown sand
36.5	41.6	Brown and Clay Hardpan
41.6	46.11	Dark Gray fine sand
46.11	52.2	Dark Gray fine sand
	53.4	bed ledge at 534

Did Well Clear Up? —

How Long? —

Time Pumped? —

Drawdown — Ft. In.

Capacity

Time Required for Recovery?

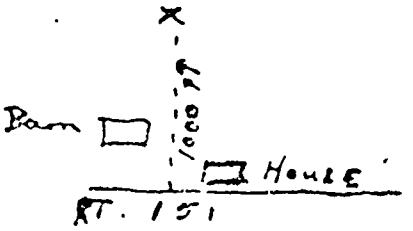
Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location

Mr. Henry's Land on RT 151



Remarks and opinion of Test

Driller C. KELLY

Helpers R. Jones

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton N.H. Test No. E-25

Address

Well located at Hampton in County, State of

Date Drilling started May 20 - 61 Date Test Hole Completed May 22-61

Total depth to bottom of Well 38 ft. Diameter Test Hole 2½"

Water stands when not pumping 4 feet 3 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	20'2	Bay clay
20'2"	25'5	Coarse Gravel & sand
25'5	31'	Coarse Gravel
31	36'2"	Coarse Gravel & Boulders
	38 ft	Bit broke at 38'

Did Well Clear Up? yes.

How Long? 2 min.

Time Pumped? 1½ hrs.

Drawdown 2 Ft. 4 In.

Capacity 55 gals

Time Required for Recovery? 2± min.

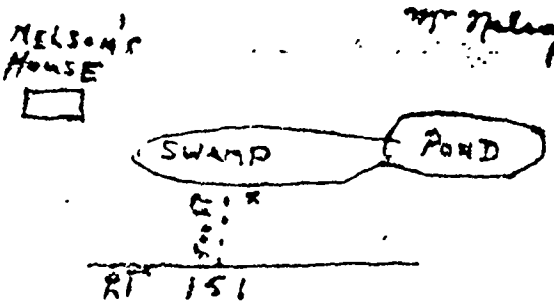
Was Well Pulled? No.

Observation yes What Depth? 36'

Was Observation Well Pulled? Tried to get out. pulled ob

Hampton ~~Beach~~ Water Co. got pulled ob

Map of Location



Remarks and opinion of Test

Driller C. Kelly

Helpers R. Jones

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton N H Test No. #27

Address

Well located at Hampton in County, State of

Date Drilling started May 23-61 Date Test Hole Completed May 23-61

Total depth to bottom of Well 17 ft Diameter Test Hole 2 1/2"

Water stands when not pumping — feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	17	Clay Hard pan
		Bed Ledge at 17ft

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

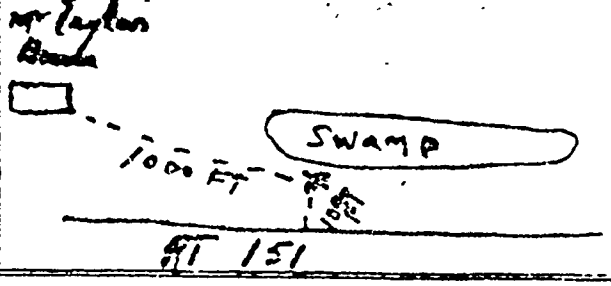
Time Required for Recovery?

Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Kelley

Helper R. Jenson

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton . N H Test No. #22

Address

Well located at Hampton in County, State of

Date Drilling started May 24-61 Date Test Hole Completed May 24-61

Total depth to bottom of Well 20'6 Diameter Test Hole 2½

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	20'6	Clay Hardpan
		Ledge at 20'6

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

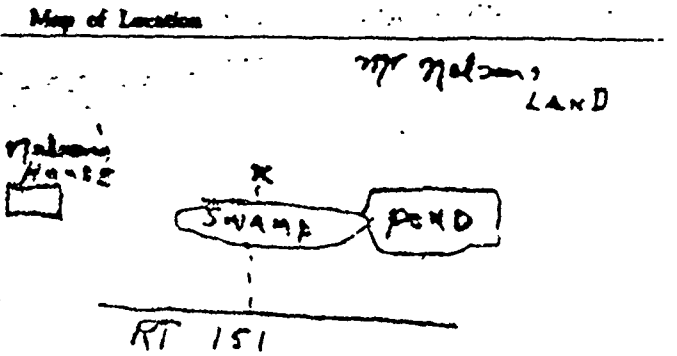
Time Required for Recovery?

Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller S. Kelley

Helper R. Jones

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton N.H. Test No. 31

Address

Well located at Hampton in County, State of NH

Date Drilling started MAL 29, 1961 Date Test Hole Completed

Total depth to bottom of Well 52'8" Diameter Test Hole 2½"

Water stands when not pumping 3 feet 3 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	23	Fine brown, sand.
23	25	Brown sand & Gravel.
25	30'3"	Sharp brown gravel & sand.
30'3	35'5"	Gravel coarse sand
35'5"	41'3"	Coarse gravel & sand.
41'3"	46'6"	Coarse gravel
46'6"	51'7"	Coarse Gravel
51'7"	52'8"	Ledge
	52'8"	Total

Did Well Clear Up? yes

How Long? 5 min

Time Pumped? —

Drawdown 3 Ft. 9 In.

Capacity 75 gal AT 46'

Time Required for Recovery? —

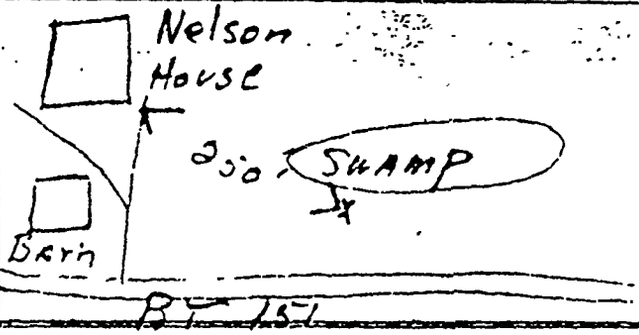
Was Well Pulled? yes

Observation 5 What Depth? 46'6" - 41'3"

42'-0" 35'8" - 35'2"

Was Observation Well Pulled? yes

Map of Location



Remarks and opinion of Test

Driller C. Kelley

Helper B. Jones

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Works Test No. 22-22 Ob.

Address

Well located at Grand Pit - Dustin Land in North Hampton County, State of N. H.

Date Drilling started 11/13/62 Date Test Hole Completed 11/15/62

Total depth to bottom of Well 47' Diameter Test Hole 2½"

Water stands when not pumping feet 2" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
20'	20'	Gravel and gray clay
		Lenght tinted brown
		sand and gravel Compact good.
10'	30'	Dark brown sand and
		gravel Compact fair
5'	35'	Light tinted brown sand
		and gravel coming to gray
		Compact all sand.
5'	40'	Fine gray sand with
		little gravel clay tight
5'	45'	Dk. tinted gray sand and
		gravel Compact fairly
		Running at 47'
		Pulled well back to 5'

Did Well Clear Up? Yes

How Long? 15 minutes

Time Pumped? 4-3-1 total 8 hours

Drawdown 1' Ft. In.

Capacity 70 G.P.M. vacuum 5"

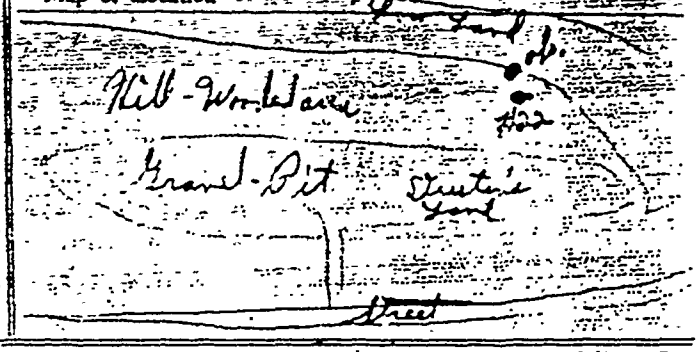
Time Required for Recovery? 1 minute

Was Well Pulled? Yes - Back to 44'

Observation Yes What Depth? 44'

Was Observation Well Pulled? Yes.

Map of Location



Remarks and opinion of Test Good flowing first 10' and last 5'.

Driller Charles Mackey

Helpers M. Moody

D. O'Donnell Jr.

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hamilton Water Works Test No. 24

Address

Well located at off Lowery Road in County, State of N. Y.

Date Drilling started 11/19/62 Date Test Hole Completed 11/19/62

Total depth to bottom of Well 51-6" Diameter Test Hole 2½"

Water stands when not pumping 1 foot 6" inches from the surface of the ground

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
2'	2'	Peat
43'	45'	Dirt gray sand and
		clay mixed.
5-6"	50-6"	Dirt gray sand and
		coarse all gravel stone
		at 48' 6" feet.
		little water
		big rocks
		bottom 51'-6"

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

Time Required for Recovery?

Was Well Pulled? Yes

Observation Well What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of

Driller Charles Mackey

Helper M. Mooney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Works Test No. 28-25-60.

Address

Well located at Training Sch. Cooling Tank in Hampton County, State of S.C.

Date Drilling started 11/5/62 Date Test Hole Completed 11/21/62

Total depth to bottom of Well 46' Diameter Test Hole 2½"

Water stands when not pumping 2 feet above ground inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
5'	5'	Loam
16'	21'	Fine sand and loam
		Light gray sand
	26'	Fine gray sand and clay
		Water sand.
	31'	Fine sand with clay
		and thin layers
		of light gray
		Kaolin lighting up.
	36'	Fine gray sand and clay
		with water sand.
		Caved with light kaolin.
5'	41'	Fine gray sand with pieces
		of light and dark gray
		kaolin and some water sand.
5'	46'	Fine gray sand with gray
		sand and clay pieces of
		light kaolin. Caved
		with light kaolin and sand.

Did Well Clear Up? Yes

How Long? 15 minutes

Time Pumped? 3 hours

Drawdown 4' 9" In.

Capacity 70 G.P.M. via 1"

Time Required for Recovery? 1 hr 6 min 1 min

Was Well Pulled? Yes Bucket 41'

Observation Yes What Depth? 41'

Was Observation Well Pulled? Yes

Map of Location

Training Sch.

Division Line

Cooling Tank

Remarks and opinion of Test Drove steel casing from 36'.

Driller Charlie Mackey

Helper Mr. Mooney

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Hampton Water Works Test No. # 6

Address

Well located at off Lovering Road in County, State of N.H.

Date Drilling started 11/23/62 Date Test Hole Completed 11/23/62

Total depth to bottom of Well 53½'6" Diameter Test Hole 7½"

Water stands when not pumping feet 6" inches from the surface of the ground

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
20'	20'	Brown and grey clay
		& gravel
15'	35'	Grey clay & gravel
5'	40'	Fine grey sand and clay
		& gravel
6"	45'6"	Fine grey sand with
		gravel and clay.
		Pumped a little but on
		the tight side
5'	50'6"	Fine grey sand with
		clay & gravel and clay
		Tight
	53'6"	Bottom

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

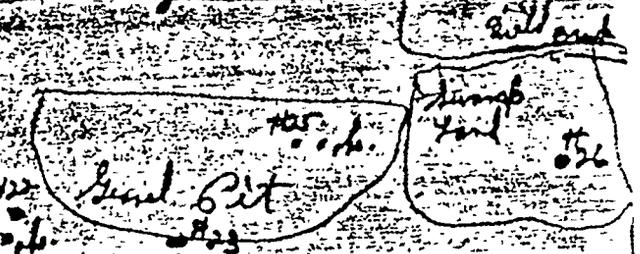
Time Required for Recovery?

Was Well Pulled? Yes

Observation None What Depth?

Was Observation Well Pulled?

Map of Location #24



Remarks and opinion of Test

Driller Charles Mackey

Helper J. Halliday

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for HAMPTON WATER Co Test No. #1

Address HAMPTON N.H.

Well located at KNOLLS PIT in HAMPTON County, State of N.H.

Date Drilling started JULY 15-64 Date Test Hole Completed JULY 15-64

Total depth to bottom of Well 34' 1" Diameter Test Hole 2 1/2

Water stands when not pumping 7' feet 3" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0 –	29'10"	BROWN SHARP
		GRAVEL WITH STREAKS
		OF CLAY
29'0" –	34'1"	HARD PAN
		(REFUSAL)

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

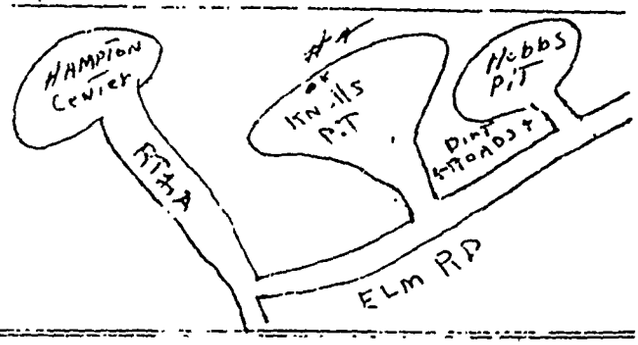
Time Required for Recovery?

Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test ... WELL DROVE HARD ALL THE WAY

Driller B JONES

Helpers D. MAHER

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for HAMPTON WATER CO Test No. #11 #11B.

Address HAMPTON N. H.

Well located at KNOLLS PIT in County, State of NH

Date Drilling started July 28-64 Date Test Hole Completed July 28-64

Total depth to bottom of Well #11-21'0" #11B-14'0" Diameter Test Hole 2 1/2

Water stands when not pumping ... feet ... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#11	21'0"	(REFUSAL)
#11B	14'0"	(REFUSAL)

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

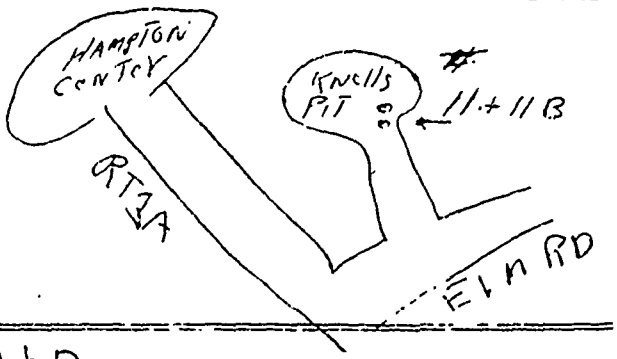
Time Required for Recovery?

Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test ... DRIVE HARD

Driller B. JONES

Helpers P. MAHER

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for HAMPTON WATER CO Test No. #13

Address HAMPTON NH

Well located at FITZ'S PIT in County, State of NH

Date Drilling started JULY 30-64 Date Test Hole Completed JULY 31-64

Total depth to bottom of Well 70'6" Diameter Test Hole 8 1/2

Water stands when not pumping ... 16' feet 8" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0-	53'5"	GRAY Med to Course GRAVEL Pumped Free
53'5"	70'6"	SHARP GRAY GRAVEL Pumped TIGHT HARD PAN (REFUSAL)
C.1		

Did Well Clear Up? Yes

How Long? 20 MIN

Time Pumped?

Drawdown Ft. In.

Capacity 20 GPM

Time Required for Recovery?

Was Well Pulled? Yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test ..... Prove HARD LAST 20'

Driller R. JONES

Helpers D. MAHER

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for HAMPTON WATER CO Test No. #17

Address HAMPTON, N.H.

Well located at FITZ'S PIT in County, State of N.H.

Date Drilling started AUG 4-64 Date Test Hole Completed AUG 7-64

Total depth to bottom of Well 57'6" Diameter Test Hole 9 1/2

Water stands when not pumping 9' feet 8" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	24'6"	DARK BROWN
		BROKE GRAVEL
		WITH CLAY PUMPED
		FREE
24'0"	34'6"	GRAY MED SAND
		WITH SOME CLAY
		PUMPED FREE
34'6"	44'0"	FINE TO MED
		SAND PUMPED
		FREE
57'6"		(REFUSAL)

THERE WAS 3 OBS. PIT
IN #17A WAS AT 45'
AND 17B WAS AT 29'
#17C WAS AT 46'.
17A BROKE OFF AND
30' OF PIPE LOST

#25 SCREEN WAS LEFT IN WELL

Did Well Clear Up? YES

How Long? 2 HRS

Time Pumped? 4 HRS

Drawdown 0 Ft. 0 In.

Capacity 55 G.P.M.

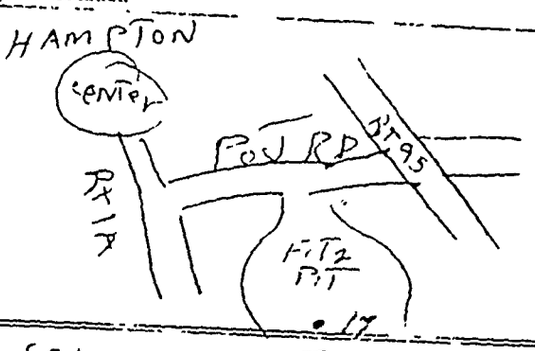
Time Required for Recovery? 2 MIN

Was Well Pulled? N/C

Observation YES What Depth? 49'0"

Was Observation Well Pulled? YES

Map of Location



Remarks and opinion of Test #17C HAD SCREEN SET AND DRILLED #30 SLOT SIZE

Driller S. JONES

Helpers L. PAISTELLI

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for American Water Work's Test No. 6 — 65

Address Hampton

Well located at Coakley's land in N Hampton County, State of New Hampshir

Date Drilling started 6/15/65 Date Test Hole Completed 6/16/65

Total depth to bottom of Well 54' 8" Diameter Test Hole 2½"

Water stands when not pumping 10' feet 6" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
C	20	Blue clay
		sharp gravel
20	35'	Med to Coarse
		brown sand +
		gravel
	50'	fine to med
		gray sand
		some gravel +
		specks off
		clay

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

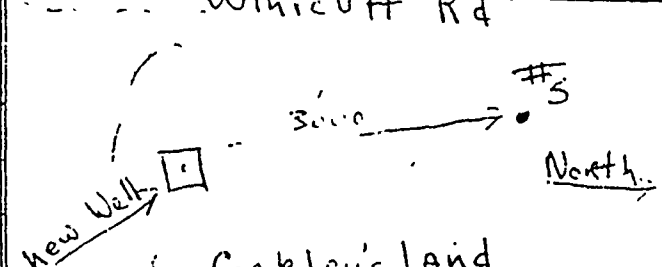
Time Required for Recovery?

Was Well Pulled? yes

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller M Mooney

Helpers W Palmer

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for American Water Work's Test No. 7 - 65

Address Hampton

Well located at Coakley's land in N. Hampton County, State of New Hamshire

Date Drilling started 6 | 17 | 65 Date Test Hole Completed 6 | 18 | 65

Total depth to bottom of Well 52' Diameter Test Hole 2½"

Water stands when not pumping 9' feet 6" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	20'	Blue clay
		sharp gravel
20'	40	Med to Coarse (BROWN) sand + gravel
40'	50	Med to Coarse gray sand some gravel specks off clay

Did Well Clear Up? yes

How Long? 15 min

Time Pumped? 1 hour

Drawdown 1' Ft. In.

Capacity 60 GPM

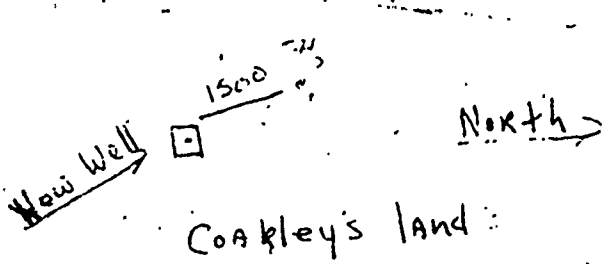
Time Required for Recovery? one min

Was Well Pulled? No

Observation ? yes What Depth? 40'

Was Observation Well Pulled? No

Map of Location



Remarks and opinion of Test Pumped test well at 45' water had clay color pulled well back to 42' pumped clear

Driller M Mooney

Helpers W Palmer

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for HAMPTON WATER DEPT N.H. Test No. #1-77 + obs

Address

Well located at COAKLEY LAND OFF WINNICUT RD. County, State of N.H.

Date Drilling started 7-5-77 Date Test Hole Completed 7-6-77

Total depth to bottom of Well 59' Diameter Test Hole 2½"

Water stands when not pumping 15' feet 9" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	28'	Brown SHARP GRAVEL AND COARSE SAND.
28'	49'	SHARP DIRTY Brown GRAVEL AND COARSE SAND.
49'	56'	SHARP Broken gravel COARSE SAND TRACE OF CLAY.
	59'	REFUSAL.

1st 40 slot screen at 58'6" exposed screen 4ft.

1st 50 slot screen at 53' in observation well exposed screen 5ft.

Both screens have 7 risers on Top. inside thread.

Did Well Clear Up? YES

How Long? ½hr

Time Pumped? 3½ hrs + 1½ hrs observation

Drawdown 1 Ft. 8 In.

Capacity 60 GPM VAC 24"

Time Required for Recovery? WITHIN 1" AFTER 5 MI

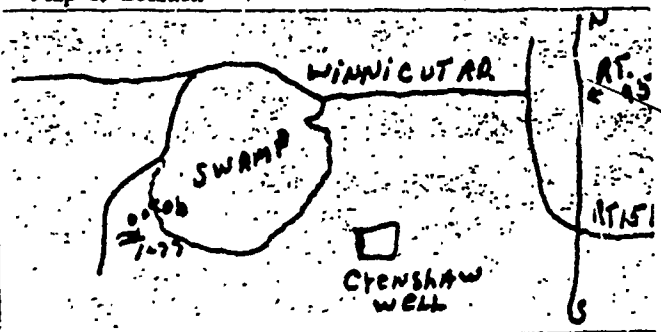
Was Well Pulled? NO

Observation YES What Depth? 53'

55 GPM VAC 23" STATIC 15'10"

Was Observation Well Pulled? NO

Map of Location



Remarks and opinion of Test Very hard driving.

Driller John A Broglio

Helpers T. Pelczar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for HAMPTON WATER DEPT Test No. #3-77

Address

Well located at BETWEEN LOVERING RD AND WINNICUT RD County, State of [redacted] N.H.

Date Drilling started 7-8-77 Date Test Hole Completed 7-11-77

Total depth to bottom of Well 64' Diameter Test Hole

Water stands when not pumping 18' feet 6" inches from the surface of the ground

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	SHARP BROWN GRAVEL
		AND FINE TO COARSE
		SAND.
21'	58'	GRAY FINE SAND AND
		CLAY
58'	63'	SHARP GRAY GRAVEL
	64'	REFUSAL
No screen set.		

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A. Doyle

Helpers T. Delazar

PELHAM

PE-1

Logs of Wells Numbers

1 through 8

1971 Series

Golden Brook Area

Well No.	Material Encountered	Remarks	Depth
1	0'-3' top soil and peat, 3'-13' Fine to med. coarse sand, 13'-14' weathered rock, refusal	shallow bedrock	14'
2	0'-3' top soil, 3'-17' fine to med. coarse sand and gravel, brown, 17' refusal	shallow bedrock	17'
3	0'-3' top soil, 3'-18' fine to med. coarse sand and gravel, brown, 18' refusal	shallow bedrock	18'
4	0'-2' top soil, 2'-18' fine to med. coarse sand and gravel, brown, 18'-29' fine gray sand with traces of clay, 29'-38' fine sand with some sharp med. to coarse gravel, gray with traces of clay, 38'-47' fine to med. coarse sand and gravel with lenses of fine gray sand and clay	pumped 15 gpm	47'
5	0'-2' top soil, 2'-16' fine to med. coarse sand and gravel brown, 16'-29' fine yellow and gray sand, 29'-44' fine yellow sand with little gravel and traces of clay	refusal	44'
6	0'-5' peat, 5'-16' fine to med. coarse sand and gravel, brown 16'-32' fine yellow sand and clay	refusal	32'
7	All boulder, used six wells deepest penetration 26'	no water	varies

Log of 8 Inch Test Well
Number 1-73
Golden Brook Area

Material Encountered	Depth
Fine to Medium Sand	0'-15'
Heavy Gravel and Boulders in Fine to Medium Sand	15'-40'
Fine Sand	40'-42'
Medium Brown Sand	42'-46'
Fine Grey-Brown Sand, Tight	46'-50'

Ten feet of Screen set between 36 and 46 feet, well developed 20 hours and pumped at rate of 200 g.p.m.

Log of 8 Inch Test Well
Number 2-73
Beaver Brook Area

Material Encountered	Depth
Top Soil	0'-5'
Fine Light Brown Sand and Medium Gravel	5'-26'
Brown Clay	26'-33'
Fine to Medium Sand Silty with Broken and Sharp Gravel	33'-42'

Ten feet of Screen set between 32 and 42 feet. Well developed and pumped at 190 g.p.m.

Well No.	Material Encountered	Remarks	Depth
8	0'-20' fine to med. coarse sand and gravel, brown, 20'-30' fine to med. gray sand with traces of gravel, 30'-45' fine to med. coarse sand and gravel, sharp with lenses of fine sand	set screen at 45', pumped hard	45'

PELHAM

PE-2

Logs of Wells Numbers

1 through 26A

1973 Series

Beaver Brook Area

Well No.	Material Encountered	Remarks	Depth
1, 1A	0'-20' fine light Sand 20'-28' fine silty sand & sharp gravel	soil very tight	28'
1B	0'-5' top soil, 5'-22' fine silty sand, trace of clay		22'
2, 2A	0'-5' top soil, 5'-17' fine silty br. sand w/blue clay, 17'-19' hardpan	30' move to well 2A	19'
3, 3A	0'-4' peat, 4'-14' fine light br. silty sand, last 2 feet hardpan	12' move to well 3A	14'
4; 4A	0'-5' peat, 5'-17' fine light br. silty sand some broken stones, last foot hardpan, blue clay	1200' south of Meadow Brook	17'
5	0'-5' peat, 5'-17' fine silty br. sand, 17'-20' hardpan	1800' west of well #2	20'
6, 6A	0'-33' fine silty sand, light brown, 33'-42' brown silty sand, broken & sharp gravel	set screen in each well pumped for 5 hrs.	42'
7	0'-5' peat, 5'-18' fine silty Brown sand, 18'-20' hardpan	west side of Beaver Brook	20'
8, 8A, 8B	0'-5' topsoil, 5'-25' fine light br. silty sand, 2 5'-31' br. clay, 31'-42' silty sand, broken & sharp gravel	set slot screen pump test for 5 hrs. well a hit boulder moved over 2' with well 8B	42' 36' 42'

Well No.	Material Encountered	Remarks	Depth
9	0'-26' brown silty sand, 26'-32' brown clay, 32'-40' fine silty sand broken & sharp gravel, trace of clay	set slot screen at 40' pumped 10 gpm for 1 hr.	40'
10	0'-16' fine br. sand, 16'-35' silty blue clay, 35'-47' fine medium sand w/blue clay & silt	tight material	47'
11	0'-16' fine brown sand, 16'54; gray silty sand w/blue clay	tight material	54'
12	0'-5' peat, 5'-20' fine-medium sharp gravel w/silt, 20'-32' sharp gravel, less silt		32'
13	0'-5' top soil, 5'-60' silty light br. sand, silty & tight	too fine	60'
14	0'-5' top soil, 5'-32' fine silty brown sand & clay 32'-35' fine silty brown clay	sand too thin rest of hole too fine	50'
15, 15A, 15B	0'-23' fine-medium br. sand & gravel with trace of clay	3 holes 30' apart refusal may be boulders	23' 21' 17'
16, 16A	0'-12' fine medium brown sand & gravel	2 holes 20' apart	12' 11'
17	0'-15' fine medium brown sand & gravel, 15'-30' brown sharp gravel & gray silt		30'
18	0'-25' brown sharp gravel with silt	too shallow	25'
19	0'-18' brown sand & gravel	refusal may be on rocks	18'
20	0'-68' fine brown sand & silt	to fine & tight	68'
21, 21A	0'-34' fine to medium brown sand & gravel, 35'-65' fine silty sand & gravel, 65' to 78 broken & sharp gravel, silty, 78'-80' hardpan	set 2 screens at 78' tested 3 hrs.	80'

Well No.	Material Encountered	Remarks	Depth
22	0'-24' fine sand, fine to medium gravel, 24'-63' fine silty sand, trace of white clay	well in swamp	63'
23	0'-6' peat, 6'-34' fine to medium broken gravel, silty, 34'-70' fine very silty white sand	well in swamp	70'
24	0'-34' reddish brown sand trace of clay, 34'-55' silty white sand, 55'-60' fine to medium reddish brown sand & gravel, broken sharp & silty	set screen at 60' .10 gpm very tight	60'
25	0'-5' peat, 4'-18' fine to medium reddish brown sand & gravel, 18'-27' fine white silty sand, 27-63' boulders, fine silty sand	well in swamp	63'
26, 26A	0'-20' fine to medium brown sand & gravel, 20'-37' fine to medium sand & gravel, silty, 37'-61' gray silty sand	set one well in each hole pumped 3 hrs.	61' 37'

PLAISTOW

PL-2

Preliminary Engineering Survey and Report

on the

Feasibility of Establishing

a Municipal Water System

for the Town of

Plaistow

New Hampshire

June 1973

Fenton G. Keyes Associates

Architects - Engineers

321 South Main St., Providence, R. I.

GENERAL GEOLOGY

Plaistow has a terrain which is a result of glacial action on a structure which originally consisted of highlands to the north-west, a major valley (Little River) running in a general north-south direction through the center of Town and additional highlands to the south-west.

The evidence is quite convincing that the Little River valley if pre-glacial and was filled in by coarser materials from the highlands and glacial outwash initially. These would generally tend to be coarse sands and gravels. During later glacial stages, the valley became a dammed up glacial lake and finer silts and clays were deposited which formed the present surface layers of the valley. The hills to the north-east and south-west have some cover of glacial sands and gravels and tills, but much of this gravel lies above its present day water table and are not suitable for water supplies.

The most likely areas to develop a suitable public water supply well, would be in the deeper lying sands underlying the Little River; sands and gravels in the north=west highlands, if they extend deep enough, and some of the sma-ler valleys to the south-west, if they are deep enough.

The purpose of the survey then, is to locate sites in each of these regions where there is sufficiently coarse sand and gravel deposits, with sufficient recharge, at sufficient depth, to develop high capacity water wells.

DETAILED ANALYSIS (SEE MAPS, PAGES 1 THROUGH 6)

SITE "A"
A geophysical line following the power lines, crosses part of the north-west pattern and the Little River valley. Resistivity and siesmic data confirmed the existance of relative deep lying sands and gravel deposits at several locations. Recharge to the area is available from Kelly and Little Rivers, access to the area is reasonably good. Test wells are recommended at resistivity stations 8 and 4.

SITE "B"
This is a swampy basin near the south end of Town and from the geophysical data, appears to be out of the main valley. Bedrock is shallow and the basin is primarily clay filled. There is some indication of a thin, shallow sand and gravel deposit on the south edge of the basin, which would appear to be too close to existing housing for development. Stations 11 and 17 are close to the river and would have good recharge, but appear to be shallow. There is a possibility that just above bedrock, a sand and gravel area exists and a test well could be driven, if necessary.

SITE "C"
The geophysical profile crosses the main valley and part of

the north-west highland, near the center of Town. The survey indicates shallow sand and gravel to the north-west, but adjacent to the river at Station 20, sand and gravel appears to be thicker. Access to the area is quite difficult, due to the swamps, but the recharge potential, is excellent. A test well at Station 20 is recommended.

SITE "D"
The survey line crosses the Little River valley just below the center of Town and also indicates good material at reasonable depth near Station 29. The site is accessible and recharge potential, good. A test well is recommended at Station 29.

SITE "E"
The profile runs along a glacial Esker, which has been mined of its surface sand and gravel. The survey indicates that the sand and gravel extended below ground to a limited depth. Since the recharge potential at the site is excellent and access is good, this might prove a satisfactory site despite its shallowness. A test well should be tried at Station 26.

SITE "F"
A profile of four resistivity stations was attempted along the same Esker as "E", but farther south. Coarse, loose, dry gravel on its surface prevented the taking of satisfactory readings. We believe the area would still be worth drilling as a speculation.

SITE "G"
Is in the north-west highland, across the street from the Regional High School and tests show a deep lying sand and gravel layer. Adequate recharge should be available from Bryant Brook and access is good. A test well at Station 32 or 33 is recommended.

SUMMARY AND RECOMMENDATIONS
We believe there is adequate evidence from the geophysical survey that good potential sites exist for the development of a Municipal water supply from wells in sands and gravels above bedrock.

We recommend a test well program be conducted at the following locations. We have listed these sites on a priority basis, solely on geological and geophysical considerations. We realize there may be other factors which may effect the actual sequence of drilling and may necessitate the elimination of some of the sites.

PRIORITY	AREA	STATION
1.	A	7-8
2.	A	4
3.	G	32-33
4.	C	20
5.	D	29
6.	E	26
7.	F	Convenient spot
8.	B	11-17

TEST WELL RECORD

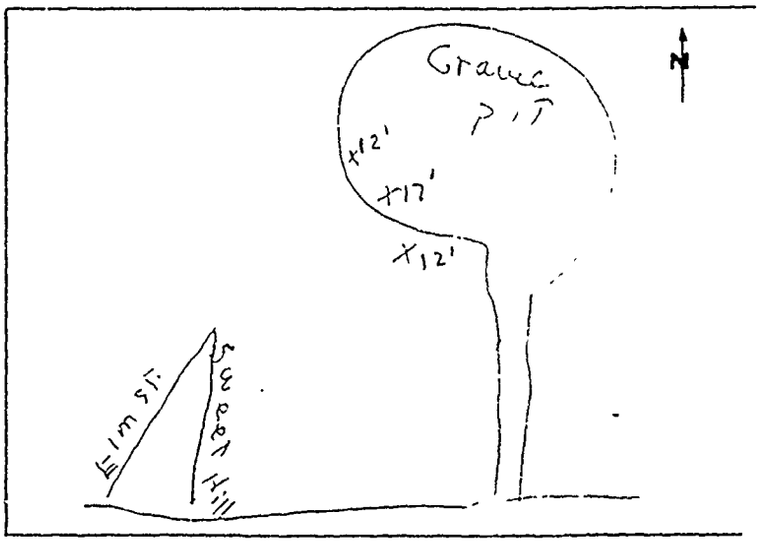
DATE 7-11-73 TEST WELL NO. 5+5-A

FOR Plaistow N.H. 5-C

LOCATION (F) -73

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

0' To 10' F,M brown sand with boulders

10' To 17' Hard-pan broken + sharp Stones.

TOTAL WELL DEPTH 12' 17' 12'

BOTTOM OF TEST HOLE

REMARKS

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL F

SCREEN LEFT: IN WELL FT., IN OBS. WELL F

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

A Pomalis

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE JULY 1 1974 TEST WELL NO. E 13-74

FOR PLAISTOW NH.

LOCATION Esker off Kingston St

PROPERTY OWNER Factory

LOG OF WELL

GROUND SURFACE 0'

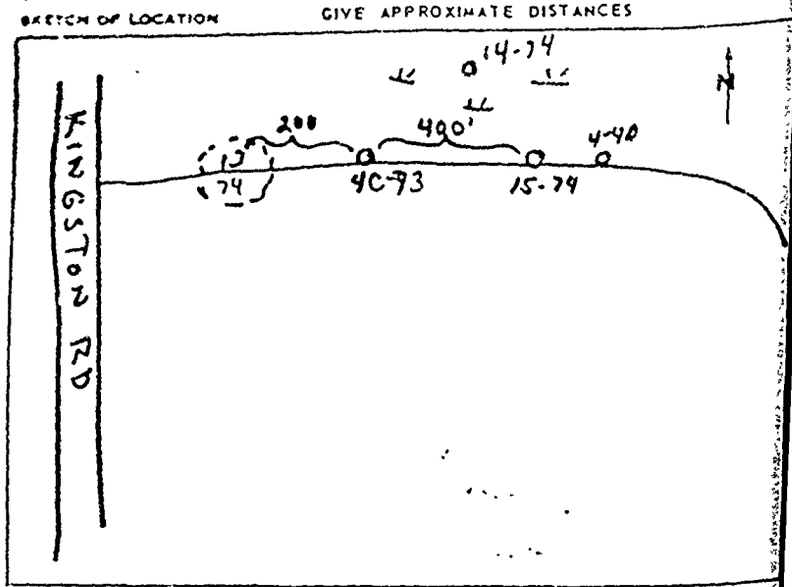
21'

HEAVY GRAVEL AND BOULDERS

TOTAL WELL DEPTH

BELOW

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



OBS WELL: NO. _____ DISTANCE _____ DEPTH _____

NO. _____ DISTANCE _____ DEPTH _____

WELL SCREEN: TYPE _____ LENGTH _____ OPENING _____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION _____

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS WELL	OBS. WELL

BOTTOM OF TEST HOLE

REMARKS

TRIED TO GET DOWN 5 TIMES IN 50'

CIRCLE

12'
12'
8'
9'
7'

NO GOOD HEAVY GRAVEL AND BOULDERS

STATIC LEVEL 3' ORIFICE _____ AIR LINE LENGTH _____

QUALITY: PH _____ HARD. _____ IRON _____ MANGANESE _____

ODOR _____ TASTE _____ LAB. SAMPLE _____

PIPE LEFT: IN WELL NONE FT., IN OBS. WELL _____

SCREEN LEFT: IN WELL _____ FT., IN OBS. WELL _____

PIPE: TO BE LEFT _____ TO BE PULLED LATER _____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

BOB PENALIS

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

Layne NEW YORK CO., INC.

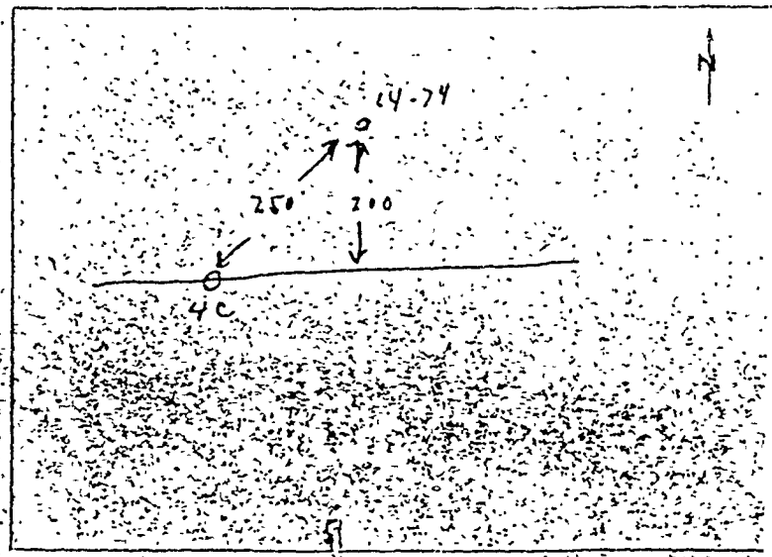
DATE JULY 2, 1974 TEST WELL NO. E-14-74

FOR PLAISTOW N.H

LOCATION ESKER - into SWAMP

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

PEAT

7

2.5

BROKEN SHARP GRAVEL

TOTAL WELL DEPTH

19

18 TILL

BOTTOM OF TEST HOLE

REMARKS

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION

TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL

STATIC LEVEL 10 ORIFICE AIR LINE LENGTH

QUALITY: PH HARD IRON MANGANESE

ODOR TASTE LAB SAMPLE

PIPE LEFT: IN WELL NONE FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

BIB PENALU

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE JULY 3, 1974 TEST WELL NO. E-15-74

FOR PLAINTON N.Y.

LOCATION EAST OFF KINGSTON RD

PROPERTY OWNER

LOG OF WELL

GROUND SURFACE 0'

FINE TO COARSE SAND & BOULDERS

24"

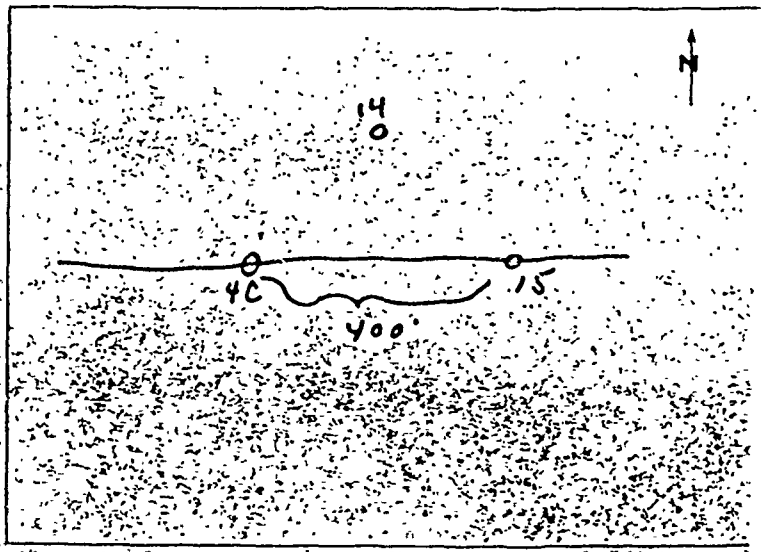
7'

MEDIUM TO COARSE SAND & GRAVEL FREE

2' BOTTOM OF TEST HOLE

TOTAL WELL DEPTH 21'

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE WW LENGTH 5' OPENING 60

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL

REMARKS

PUMPED 2 HOURS FOR SAMPLE AT 50 GPM W 8" VACUUM - NO EFFECT ON OW 4C STATE SAMPLE TAKEN

STATIC LEVEL 1' ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR NONE TASTE O.K. LAB. SAMPLE YES

PIPE LEFT: IN WELL 18' FT. IN OBS. WELL FT.

SCREEN LEFT: IN WELL 5' FT. IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

BOB PENALIS

FOR LAYNE - NEW YORK CO., INC.

PLAISTOW

PL-3

TEST WELL RECORD

LAYNE NEW YORK CO., INC

DATE 1-4-77 TEST WELL NO. 4 ±

FOR WINSTON N.H

LOCATION (Gravel) PIT

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

LOG OF WELL

GROUND SURFACE 0'

0 TO 10' Boulders Fine Sand

10' TO 12' Hard pan

TOTAL WELL DEPTH 12'

BOTTOM OF TEST HOLE

REMARKS

well out

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL

STATIC LEVEL 2' ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL

SCREEN LEFT: IN WELL NONE FT., IN OBS. WELL

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

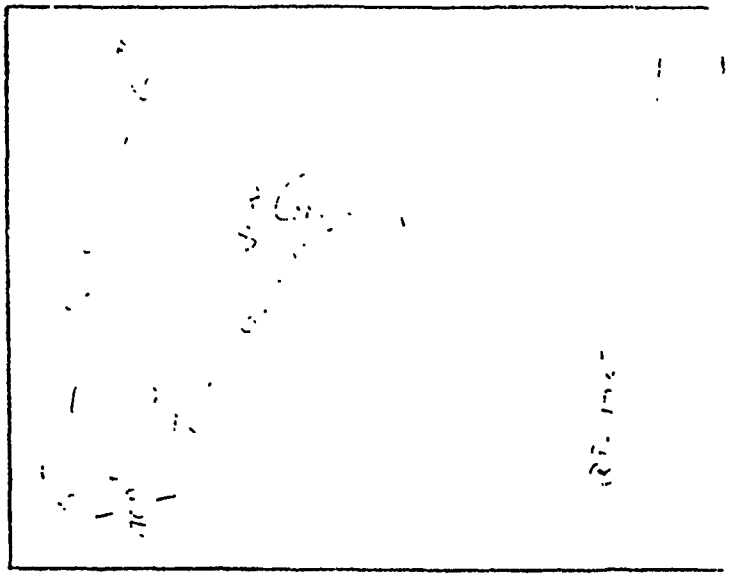
DATE 5/16/77 TEST WELL NO. 5-T

FOR Princeton N.H.

LOCATION Cincinnati O.T

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

0' To 10'
Sand Gravel
10' To 15'
Hard Pan

TOTAL WELL DEPTH 15'

BOTTOM OF TEST HOLE

REMARKS

5-T

OBS. WELL: NO. _____ DISTANCE _____ DEPTH _____

NO _____ DISTANCE _____ DEPTH _____

WELL SCREEN: TYPE _____ LENGTH _____ OPENING _____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION: _____

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL

STATIC LEVEL 3' ORIFICE _____ AIR LINE LENGTH _____

QUALITY: PH _____ HARD. _____ IRON _____ MANGANESE _____

ODOR _____ TASTE _____ LAB. SAMPLE _____

PIPE LEFT: IN WELL _____ FT., IN OBS. WELL _____ FT

SCREEN LEFT: IN WELL NONE FT., IN OBS. WELL _____ FT

PIPE: TO BE LEFT _____ TO BE PULLED LATER _____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

DATE 2/16/77 TEST WELL NO 7-37

FOR Plains

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

N

LOG OF WELL

GROUND SURFACE 0'

TOTAL WEL. DEPTH

BOTTOM OF TEST HOLE

REMARKS

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL	TIME	GPM	PUMP. WELL	OBS WELL

STATIC LEVEL 3' ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL FT., IN OBS. WELL

SCREEN LEFT: IN WELL NONE FT., IN OBS. WELL

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

FOR LAYNE - NEW YORK CO., INC.

PORTSMOUTH

PO-1

PROGRESS REPORT ON TEST WELL INVESTIGATION PORTSMOUTH, NEW HAMPSHIRE

AUGUST 1977

WHITMAN & HOWARD, INC.
Engineers and Architects
15 William St. Wellesley, Mass.
Concord, New Hampshire

D. L. MAHER CO.

LOG OF TEST WELL

1-S-57

Log of Well for PORTSMOUTH N.H. WATER DEPT. Test No. [redacted]

Address

Well located at SHERBURNE WELL FIELD in County, State of N.H.

Date Drilling started 6-23-77 Date Test Hole Completed 6-24-77

Total depth to bottom of Well 54' 0" Diameter Test Hole 2½"

Water stands when not pumping 5' feet 1" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	7'	PEAT
7'	41'	GRAY CLAY AND FINE GRAY SAND.
41'	54'	FINE DIRTY BROWN SAND AND SHARP BROKEN GRAVEL.
	54'	REFUSAL
Set 60 slot screen at 53' exposed screen 5'. Screen has 7' riser on top. inside thread		

Did Well Clear Up? NO

How Long?

Time Pumped? 1HR developing ½ pumped

Drawdown Ft. In.

Capacity 30GPM VAC 28"

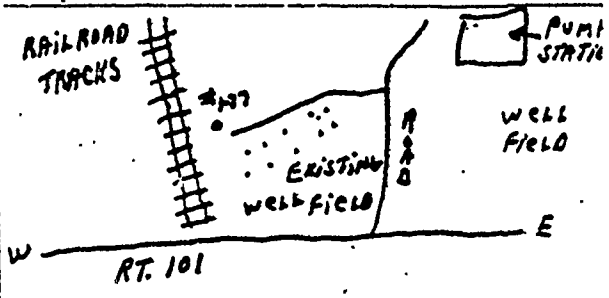
Time Required for Recovery?

Was Well Pulled? NO

Observation NO What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John Braglia

Helpers Ted Delefas

D. L. MAHER CO.

LOG OF TEST WELL

2-S-77

Log of Well for PORTSMOUTH N.H. WATER DEPT ... Test No. #29

Address

Well located at SHERBURNE WELL FIELD in ... County, State of N.H.

Date Drilling started 6-24-77 Date Test Hole Completed 6-27-77

Total depth to bottom of Well 51' Diameter Test Hole 2±"

Water stands when not pumping 4' feet 11" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	GRAY CLAY SOME SHARP GRAVEL.
21'	28'	SHARP GRAYISH BROWN GRAVEL SOME CLAY.
28'	51'	DIRTY SHARP GRAVEL AND FINE SAND.
	51'	REFUSAL
Set 40 slot screen at 49' exposed screen 6ft. Screen has 7" riser on on top. Inside threads		

Did Well Clear Up? YES

How Long? ±hr

Time Pumped? 2hrs Developing 2hr pumping

Drawdown Ft. In.

Capacity 60 gpm VAC 22"

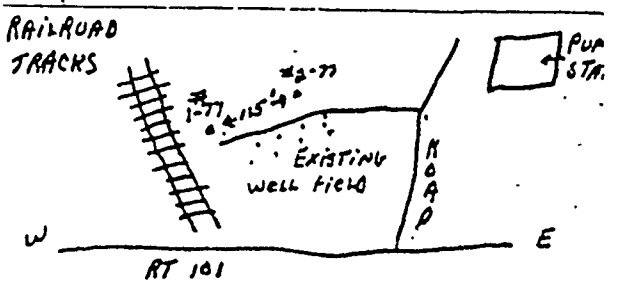
Time Required for Recovery?

Was Well Pulled? NO

Observation NO What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John Fraglia

Helpers Ted Pelizar

D. L. MAHER CO.

LOG OF TEST WELL

3-8-77

Log of Well for Portsmouth N.H. Water Dept Test No. [redacted]

Address

Well located at Sherburne well field in County, State of N.H.

Date Drilling started 6-27-77 Date Test Hole Completed 6-28-77

Total depth to bottom of Well 44' Diameter Test Hole 8½"

Water stands when not pumping 4' feet 4" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	Gray and Brown Clay
		Sharp gravel
21'	28'	Dirty sharp gravel
		Trace of Brown Clay
28'	42'	Dirty coarse sand and
		sharp gravel.
	44'	REFUSAL
Set 50 slot screen at 42' exposed screen 6' Screen has 7' riser on top. Male thread		

Did Well Clear Up? NO YELLOW COLOR

How Long?

Time Pumped? 1½ hrs Developing 1½ Pumped.

Drawdown Ft. In.

Capacity 50 GPM VAC 23½"

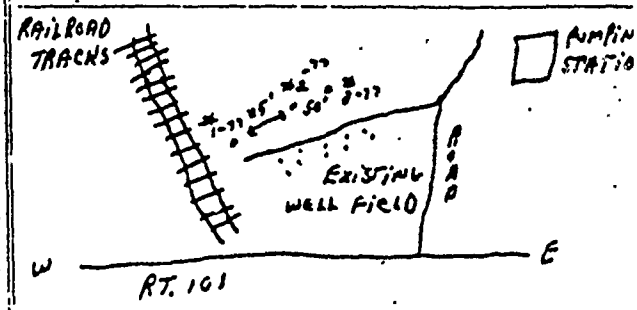
Time Required for Recovery?

Was Well Pulled? NO

Observation NO What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John Goglia

Helper Ted Belejar

"WORLD'S LA... ...DEVELOPERS"

Layne - NEW ENGLAND COMPANY
A BRANCH OF LAYNE-NEW YORK COMPANY, INC.
WATER WELLS • WELL PUMPS • WATER TREATMENT
ASSOCIATED LAYNE WATER SUPPLY COMPANIES OPERATE THROUGHOUT THE COUNTRY

15 RYDER STREET
Arlington, Mass. 02174
PHONE 617-648-5300

6 May 1971

Water Department
Portsmouth
New Hampshire

Attention: Joseph Rehler
Reference: Ground Water Supply

Gentlemen:

This will confirm our discussions of 4 May, concerning conditions observed at your wells and suggested short and long term improvement programs.

As we see it, the following is a summary of your wells and the approximate amount of yield you could rely on for at least ninety days during the summer months.

PORTSMOUTH #1
This well is old. Probably installed in 1921. The well is equipped to deliver 600 GPM, although this far exceeds its current capacity. Old records show that in 1930, a reliable yield of at least 400,000 GPD was obtained from this site, and it may well be that higher yields could have been maintained, but were not needed. The current safe capacity of this well is----------.17 MGD

GREENLAND #1
This well has a sand problem which limits the useful capacity of the well. It would appear that when the pumping level approximates 44', the well begins to pump sand. This well was originally equipped at the rate of 600 GPM or so, but we doubt that you can rely on it during summer pumpage for more than----------.65 MGD

MADBURY1,2 and 3
These are in a limited aquifer and have the physical capacity to pump much more water than can be sustained. The best estimates are that approximately 150 million gallons are contained in storage when the aquifer is full in the springtime. Also, the aquifer is recharged from the holding reservoir near wells 1 and 2. By using storage and recharge, we believe the three wells could yield for ninety days, during the summer months----- 1.3 MGD

MADBURY #4
This well appears to be in a separate aquifer than wells 1, 2 and 3 and is probably separated by the rock ridge,

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Arlington, Mass. 02174
PHONE 617-648-5300

visible on the north side of the valley and extending under the Filter Plant. This well is equipped to deliver 1000 GPM, but again, this rate pumped continuously, far exceeds the storage and recharge capacity of the aquifer. We believe the best, safe yield for ninety days of this well would approximate-----.5 MGD.

SHERBURNE WELL FIELD

This is an old (1891) well field which has been improved from time to time. The original records indicate that a yield in the order of 1 MGD was obtainable with all lines working. Currently, two lines, one of nine wells and one of twenty wells are not in service, due to deterioration of the wells or mains. Twenty-six wells in service and in spring flood conditions can deliver .9 MGD, but for summer use, it is doubtful that the field in its present condition could deliver more than .7 MGD. The total safe summertime capacity of the wells is therefore approximately----------3.32 MGD

This yield was based upon delivery over a sixty to ninety day period and it is possible that by forcing some of the wells especially Madbury, that higher yields can be taken for short periods (1 week or so) but it should be recognized that the periods where the yield exceeds those estimated above, would have to be compensated for, by lower than average yield at other times.

We understand that the Filter Plant, by midsummer can be relied on for approximately 2.5 MGD, so that with all equipment operating, you should just about be able to meet your anticipated 1971 peak day of 5.8MG.

The immediate problem seems to be one of developing some reserve capacity and the long range problem would be to develop a reliable source of additional supply, in the order of 1-2 MGD. We believe that by work at some of your existing installations, some additional capacity can be gained. Enough to meet the short term goal. The most productive points for some amount of additional yield seem to be at Portsmouth #1 and the Sherburne station, described below

Tests made in 1970 would indicate that additional supplies can not be developed at the Greenland station by drilling another well which could be pumped in conjunction with the existing well. About all that could be done here, would be to construct a well

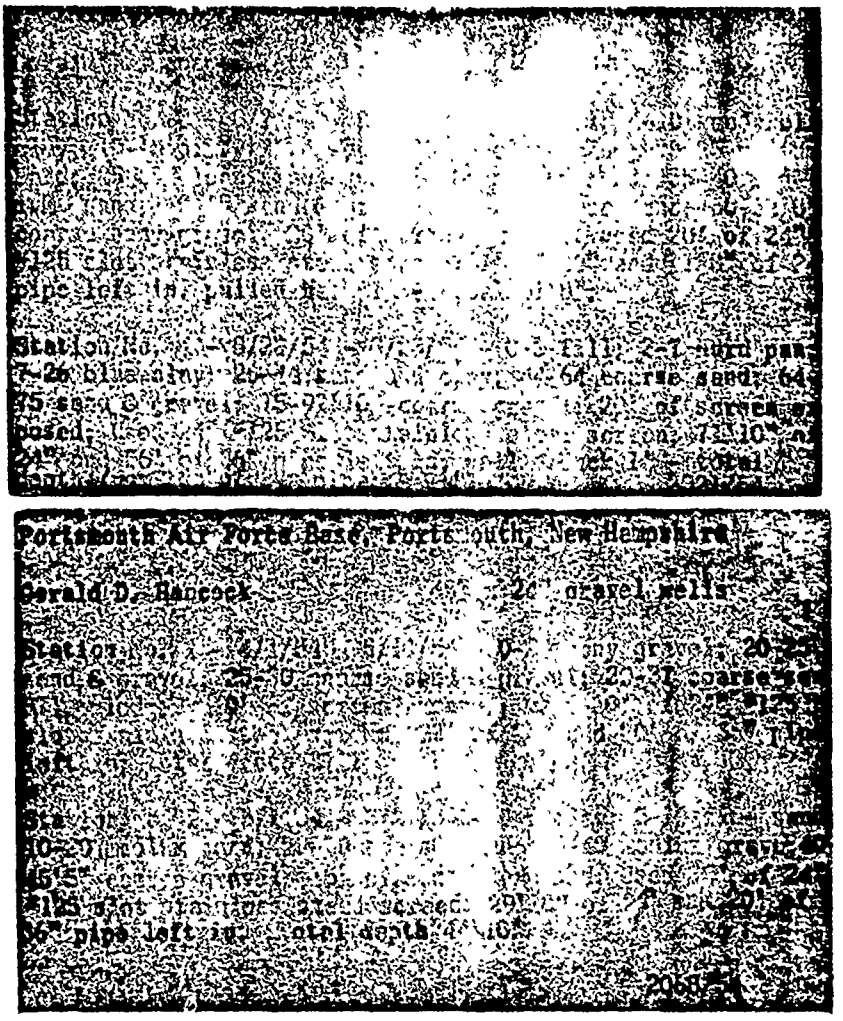
WELL DATA

	Madbury #1	Madbury #2	Madbury #3	Madbury #4	Greenland #5	Portsmouth #1	Sherburne
. Well Number							
:. Reference Point	PUMP BASE PLATE	PUMP BASE PLATE	PUMP BASE PLATE	PUMP BASE PLATE	LOWER FLOOR	PUMP BASE PLATE	35 Wells G.L. 26 OPERATING
3. Well Depth	43'	47' 10"	65.5	95.5	60	62' 8"	38 to 55'
. Screen Length	10'	15'	20'	20'	10'	26'	2' to 5'
5. Screen Diameter	24"	24"	24"	24"	24" with 16" liner	24" - 22' 16" - 4	1 1/4"
6. Top of screen	33'	32'10"	45.5	75.5	50'	35' 2"	33-50.
7. End of Tube	39'	44'	46'	75'	53'	45'	None
8. Static Level	VARIES WITH SEASON AND PUMPAGE 20-30	20-30	20-30	20-50	38'	10'	5' - 9'
9. Lowest permissible level	33'	33'	45'	75'	44'	40'	20'
0. Pump Setting	40' End Suction Pipe	45.5 End suction pipe	47' End suction pipe	85' end suction pipe	54' 6"	61' End Suction Pipe	None
1. Estimated safe capacity gpm			900*	350	450	120	485
2. Estimated safe capacity gpd			1,300,000*	500,000	650,000	170,000	700,000

* TOTAL FOR MADBURY 1,2 and 3

Notes:

1. "Drawdown" as used here is distance from reference point to water level.
2. When air pressure gage is used, drawdown is distance from reference point to end of tube minus gage reading (in feet).



Portsmouth Air Force Base, Portsmouth, New Hampshire

Gerald D. Hancock

Portsmouth Air Force Base, Portsmouth, New Hampshire

H. Farrow -. 10/8/54 -

Elevator hole-No. 1, 2, 3, and Propeller Shop

136' total of all holes.

2345/54

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Booth Fisheries Test No. Kings Pt

Address Rt. 101.

Well located at Plant in Portsmouth County, State of New Hampshire

Date Drilling started 9/16/72 Date Test Hole Completed 9/17/72

Total depth to bottom of Well 50'-0" Diameter Test Hole 2"

Water stands when not pumping 8 feet 6 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
6	24	Fine to med Brown Sand, small gravel & traces of clay Rolled 15 Blue
24	50	Fine med to Coarse Brown Sand & Large Gravel Frac
		Refusal 50-0
		Set 10 of 4" Slot Screen
		48-0 to 38' Well Pumped 70 GPM 1½ HP

Did Well Clear Up? yes

How Long? 10 min

Time Pumped? 3 hrs Took Sample

Drawdown Ft. 6 In.

Capacity 70 GPM 1½ HP

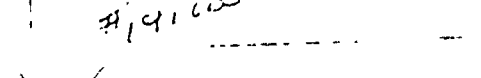
Time Required for Recovery? 1½ hrs

Was Well Pulled? No

Observation yes What Depth? 50' Set 10' of Slot Screen 40' to 30'

Was Observation Well Pulled? No 50' Pipe Left

Map of Location



Remarks and opinion of Test

Driller Matt Mahoney

Helpers Steve Kelley

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire

UNITED STATES DEPARTMENT
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

ROCKINGHAM COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
KENSINGTON 25. X17-1. Alt. 75 ft. Lat. 42°57'53". Long. 70°50'17".		
Ice-contact deposits:		
Sand, fine, brown	16	16
Clay, gray	9	25
Sand, slightly gravelly, and clay lenses, brown	41.5	66.5
Refusal		66.5
KENSINGTON 26. X17-5. Alt. 65 ft. Lat. 43°04'15". Long. 70°49'19".		
Outwash and shore deposits:		
Gravel, sandy, brown	26	26
Marine deposits:		
Clay, gray	15	41
Refusal		41
KENSINGTON 2. W17-4. Alt. 128 ft. Lat. 43°04'58". Long. 70°58'24".		
Ice-contact deposits:		
Sand	57	57
KENSINGTON 4. W17-5. Alt. 40 ft. Lat. 43°04'59". Long. 70°57'11".		
Marine deposits:		
Clay	30	30
Till:		
Sand and rocks	8	38
Bedrock	200	238
NORTH HAMPTON 1. X17-8. Alt. 110 ft. Lat. 43°00'02". Long. 70°48'41".		
Outwash and shore deposits:		
Gravel	20	20
Marine deposits:		
Clay and silt, gray	60	80
Bedrock	58	138
NORTH HAMPTON 4. X16-1. Alt. 105 ft. Lat. 42°57'56". Long. 70°50'21".		
Ice-contact deposits:		
Sand and gravel, silty	40	40
Bedrock	65	105
NORTH HAMPTON 6. X16-2. Alt. 122 ft. Lat. 42°59'22". Long. 70°49'16".		
Unconsolidated deposits, undifferentiated:		
Gravel	45	45
Clay	29	74
Not recorded	6	80
Bedrock	20	100
NORTH HAMPTON 8. X16-2. Alt. 65 ft. Lat. 42°57'32". Long. 70°49'24".		
Unconsolidated deposits, undifferentiated	7	7
Ice-contact deposits:		
Sand and gravel	35	42
NORTH HAMPTON 10. X16-2. Alt 83 ft. Lat. 42°58'25". Long. 70°49'49".		
Unconsolidated deposits, undifferentiated	1	1
Bedrock:		
Rock	174	175
NORTH HAMPTON 11. X16-1. Alt 85 ft. Lat. 42°59'25". Long. 70°50'42".		
Ice-contact deposits:		
Sand and gravel	74	74
NORTH HAMPTON 12. X16-1. Alt. 95 ft. Lat. 42°58'17". Long. 70°50'43".		
Unconsolidated deposits, undifferentiated:		
Gravel and bouldery material	29	29
Bedrock	150	179
NORTH HAMPTON 13. X16-1. Alt. 65 ft. Lat. 42°58'27". Long. 70°50'11".		
Unconsolidated deposits, undifferentiated:		
Clay and boulders	10	10
Bedrock	40	50
NORTH HAMPTON 14. X16-1. Alt. 108 ft. Lat. 42°52'51". Long. 70°50'10".		
Ice-contact deposits:		
Sand and boulders	20	20
Bedrock	150	170
NORTH HAMPTON 15. X16-2. Alt 85 ft. Lat. 42°58'07". Long. 70°49'26".		
Till	19	19
Bedrock	53	72
NORTH HAMPTON 16. X16-2. Alt 85 ft. Lat. 42°59'36". Long. 70°53'20".		
Outwash and shore deposits:		
Sand and gravel	12	12
Marine deposits:		
Clay and gravel	7	19
Refusal		19
NORTH HAMPTON 17. X16-2. Alt 85 ft. Lat. 42°59'39". Long. 70°53'24".		
Outwash and shore deposits:		
Sand and gravel	6	6
Marine deposits:		
Clay	19	25
Refusal		25
NORTH HAMPTON 18. X16-2. Alt 87 ft. Lat. 42°59'42". Long. 70°53'28".		
Outwash and shore deposits:		
Sand and gravel	12	12
Till:		
Clay, sand, and gravel	17	29
Refusal		29
NORTH HAMPTON 19. X16-2. Alt 95 ft. Lat. 42°59'46". Long. 70°53'31".		
Outwash and shore deposits:		
Sand and gravel	12.3	12.3
Marine deposits:		
Clay	5.5	17.8
Till:		
Clay, sand, gravel, and disintegrated bedrock	15.0	32.8
Refusal		32.8
NORTH HAMPTON 20. X16-2. Alt 105 ft. Lat. 42°59'54". Long. 70°53'31".		
Outwash and shore deposits:		
Sand	12.3	12.3
Marine deposits:		
Clay	5.0	17.3
Clay and gravel	4.5	21.8
Refusal		21.8
NORTH HAMPTON 21. X16-2. Alt 95 ft. Lat. 42°59'52". Long. 70°53'16".		
Ice-contact deposits:		
Clay and gravel	1.3	11.3
Till:		
Sand, gravel, and broken ledge	6.9	18.2
Refusal		18.2
PLAISTOW 7. V15-5. Alt. 285 ft. Lat. 42°49'58". Long. 71°04'25".		
Till	80	80
Bedrock	95	175
PLAISTOW 10. V15-4. Alt. 100 ft. Lat. 42°49'54". Long. 71°06'25".		
Geologist's log.		
Outwash and shore deposits:		
Sand, coarse to very coarse, buff to brown; contains scattered gravel, flint	4.5	4.5
Till:		
Silt and sand, compacted, brown; scattered gravel, fine, angular	0.5	5.0
Refusal		5.0
PLAISTOW 11. V15-4. Alt. 95 ft. Lat. 42°49'57". Long. 71°06'24".		
Geologist's log.		
Outwash and shore deposits:		
Fill	1.0	1.0
Sand, very fine, and silt, brown to olive-drab	9.0	10.0
Marine deposits:		
Silt; some sand, very fine, micaceous, laminated, brown	9.0	19.0
Silt and clay, light gray with brown streaks	3.0	22.0
Silt and clay, light gray-blue; contains scattered pebbles	4.5	26.5
Till:		
Silt, sand, and gravel, subangular, compacted, brown	1.0	27.5
Refusal		27.5
PLAISTOW 12. V15-1. Alt. 125 ft. Lat. 42°51'35". Long. 71°05'48". Geologist's log.		
Outwash and shore deposits:		
Loam, very sandy, brown	1.5	1.5
Sand, coarse to very coarse, and gravel, micaceous, rusty brown to brown; a few pebbles, rounded to subrounded	6.0	7.5
Sand, fine to medium, micaceous, rusty brown to brown	3.5	11.0
Sand, medium to coarse, micaceous, rusty brown	4.0	15.0
Sand, very fine to fine, micaceous, brown	4.0	19.0
Sand, fine to medium, brown; some mica grains	6.0	25.0
Sand, very fine to fine, interbedded with brown to brownish-gray silt layers about ¼- to 1-inch thick	7.0	32.0
Marine deposits:		
Silt and clay, light gray-blue; contains scattered pebbles	8.0	40.0
Refusal (large pebbles)		40.0
PLAISTOW 13. V15-1. Alt. 90 ft. Lat. 42°50'39". Long. 71°06'47". Geologist's log.		
Outwash and shore deposits:		
Sand, fine to medium, brown; contains many mafic mineral grains and mica grains	11	11
Sand, medium to very coarse, rounded to subrounded, tan to brown; contains many dark gray, slaty rock fragments	5	16
Sand, layers of medium sand and very coarse sand, rounded to subrounded, tan to brown; contains many dark-gray, slaty rock fragments	6	22
Sand, fine to medium, brown; contains many mica and mafic mineral grains	5	27
Marine deposits:		
Silt and clay, plastic, light blue-gray, contains scattered angular gravel in bottom 2 feet	13	40
Refusal		40
PLAISTOW 14. V15-1. Alt. 80 ft. Lat. 42°50'33". Long. 71°06'12".		
Marine deposits:		
Clay and sand	3.3	3.3
Clay, sand, and gravel	5.9	9.2
Sand, fine	15.1	24.3
Clay, sand, and gravel	4.5	28.8
Till:		
Hardpan with layer of blue clay from 36.6 to 37.5 feet	10.1	38.9
Bedrock		38.9
PLAISTOW 15. V15-1. Alt. 95 ft. Lat. 42°50'43". Long. 71°06'04".		
Marine deposits:		
Peat	1.2	1.2
Clay, sand; a little gravel	5.8	7.0
Clay, gray; sand and gravel	10.3	17.3
Clay, gray; sand	1.6	18.9
Clay, gray; sand and gravel	4.8	23.7
Clay, gray	0.6	24.3
Till:		
Hardpan	0.7	25.0
Bedrock		25.0
KENSINGTON 12. X17-8. Alt. 63 ft. Lat. 43°01'30". Long. 70°47'38".		
Ice-contact deposits:		
Sand and gravel	18	18
Bedrock	199	217

Table 4.—Logs of selected wells and test holes in southeastern New Hampshire—Continued

ROCKINGHAM COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
PORTSMOUTH 13. X17-5. Alt. 58 ft.		
Lat. 43° 05'30". Long. 70°48'31".		
Marine deposits:		
Soil, sand, slightly gravelly, brown (probably till).....	10.0	10.0
Clay, sandy, brown.....	10.0	20.0
Ice-contact deposits:		
Sand, gray to white.....	20.0	40.0
Till:		
Silt, sandy, gravelly, gray....	10.0	50.0
Bedrock:		
Rock, weathered, and silt, sandy.....	4.5	54.5
PORTSMOUTH 14. X17-5. Alt. 75 ft.		
Lat. 43°03'41". Long. 70°48'30".		
Ice-contact deposits:		
Sand, fine, slightly silty, brown.....	30.0	30.0
Silt, sandy and gravelly.....	15.0	45.0
Sand, fine, appears well-graded, brown.....	20.0	65.0
Till:		
Sand and broken bedrock fragments.....	5.5	70.5
Refusal.....		70.5
PORTSMOUTH 15. X17-5. Alt. 60 ft.		
Lat. 43°03'57". Long. 70°48'18".		
Ice-contact deposits:		
Sand, coarse, and clay seams, brown.....	20	20
Sand, coarse, slightly gravelly, and clay seams, brown.....	5	25
Gravel, sandy, brown.....	10	35
Sand, coarse, gravelly, brown..	10	45
Till:		
Sand, silty, gravelly, and broken bedrock fragments, gray.....	2	47
Refusal.....		47
PORTSMOUTH 16. X17-5. Alt. 45 ft.		
Lat. 43°03'50". Long. 70°47'48".		
Unconsolidated deposits, undifferentiated:		
Gravel, coarse, silty, sandy, brown.....	12	12
Bedrock.....	3	15
PORTSMOUTH 17. X17-5. Alt. 57 ft.		
Lat. 43°03'57". Long. 70°48'16".		
Ice-contact deposits:		
Sand, coarse, brown, and clay seams.....	20	20
Sand, gravelly, and gravel, sandy, brown.....	24	44
Refusal		44
PORTSMOUTH 18. X17-5. Alt. 53 ft.		
Lat. 43°03'59". Long. 70°48'15".		
Ice-contact deposits:		
Sand, gravelly, gray.....	10.0	10.0
Sand, fine, and clay lenses, gray.....	31.5	41.5
Refusal.....		41.5
PORTSMOUTH 19. X17-5. Alt. 57 ft.		
Lat. 43°04'00". Long. 70°48'18".		
Ice-contact deposits:		
Sand, fine, silty, and clay lenses.....	33	[illegible]
Refusal.....		[illegible]
PORTSMOUTH 20. X17-5. Alt. 48 ft.		
Lat. 43°04'04". Long. 70°48'15".		
Ice-contact deposits:		
Sand, fine, and clay lenses, brown.....	24	24
Refusal.....		24
PORTSMOUTH 21. X17-5. Alt. 63 ft.		
Lat. 43°03'53". Long. 70°48'14".		
Ice-contact deposits:		
Sand, gravelly, and gravel, coarse, sandy, gray-brown....	23	23
Refusal (in gravel, coarse).....		23
PORTSMOUTH 22. X17-6. Alt. 38 ft.		
Lat. 43°04'47". Long. 70°47'07".		
Unconsolidated deposits, undifferentiated:		
Clay, gray.....	7	7
Till:		
Silt, sandy, gravelly, gray...	19	26
Refusal.....		26
PORTSMOUTH 23. X17-5. Alt. 75 ft.		
Lat. 43°04'48". Long. 70°49'00".		
Ice-contact deposits:		
Sand, silty, fine, and clay lenses, brown.....	31	31
Gravel, sandy, coarse, brown..	9	46
Refusal (in gravel, coarse).....		46
PORTSMOUTH 24. X17-5. Alt. 65 ft.		
Lat. 43°04'30". Long. 70°49'11".		
Ice-contact deposits:		
Gravel, sandy, brown.....	39	39
Refusal (in gravel, coarse).....		39
PORTSMOUTH 26. X17-9. Alt. 35 ft.		
Lat. 43°01'12". Long. 70°47'05".		
Till:		
Clay, sand, gravel, and broken bedrock fragments.....	10.4	10.4
Clay and gravel, fine.....	19.8	30.2
Refusal.....		30.2
RYE 3. X17-8. Alt. 130 ft.		
Lat. 43°00'16". Long. 70°48'22".		
Ice-contact deposits:		
Sand and gravel.....	90	90
Clay.....	47	137
Bedrock.....	22	159
RYE 4. X16-3. Alt. 63 ft.		
Lat. 42°59'51". Long. 70°46'45".		
Ice-contact deposits:		
Sand.....	65	65
Bedrock.....	120	185
RYE 5. X17-9. Alt. 85 ft.		
Lat. 43°00'30". Long. 70°47'21".		
Ice-contact deposits:		
Gravel.....	30	30
Bedrock.....	56	86
RYE 6. X17-4. Alt. 25 ft.		
Lat. 43°02'36". Long. 70°44'51".		
Till:		
Hardpan, blue.....	11	11
Bedrock.....	49	60
RYE 9. X17-9. Alt. 100 ft.		
Lat. 43°00'08". Long. 70°47'29".		
Ice-contact deposits:		
Sand and gravel.....	80	80
RYE 11. X17-9. Alt. 85 ft.		
Lat. 43°00'43". Long. 70°46'24".		
Till:		
Boulders and silt.....	40	40
Bedrock.....	65	105
RYE 15. X17-9. Alt. 90 ft.		
Lat. 43°00'06". Long. 70°47'28".		
Ice-contact deposits:		
Gravel, silty, sandy, brown...	41	41
Refusal.....		41
RYE 16. X16-3. Alt. 75 ft.		
Lat. 42°59'56". Long. 70°47'26".		
Ice-contact deposits:		
Gravel, sandy, brown.....	12	12
Refusal (in gravel, coarse).....		12
RYE 17. X16-3. Alt. 75 ft.		
Lat. 42°59'58". Long. 70°47'27".		
Ice-contact deposits:		
Gravel, silty, sandy, and clay lenses, brown.....	20	20
Gravel, coarse, brown.....	9	29
Refusal (in gravel, coarse).....		29
RYE 18. X17-8. Alt. 108 ft.		
Lat. 43°00'11". Long. 70°48'07".		
Ice-contact deposits:		
Gravel, silty, sandy.....	8.0	8.0
Till:		
Silt, sandy, gravelly, gray...	2.5	10.5
Refusal.....		10.5
RYE 19. X17-9. Alt. 85 ft.		
Lat. 43°00'06". Long. 70°47'27".		
(Drilled in gravel pit about 15 feet below original land surface.)		
Ice-contact deposits:		
Sand, fine, hard, yellow clay.	20.6	20.6
Gravel, clay, broken bedrock fragments.....	5.6	26.2
Sand, fine.....	5.7	31.9
Gravel and broken bedrock fragments.....	4.9	36.8
Refusal.....		36.8
RYE 20. X16-3. Alt. 70 ft.		
Lat. 42°59'58". Long. 70°47'26".		
(Drilled in gravel pit about 20 feet below original land surface.)		
Ice-contact deposits:		
Sand and gravel.....	11.0	11.0
Sand, gravel, clay, and broken bedrock fragments....	8.0	19.0
Sand, fine, and gravel.....	6.0	25.0
Sand, coarse, and gravel.....	6.0	31.0
Gravel and sand.....	11.3	42.3
Gravel and broken bedrock fragments.....	10.5	52.8
RYE 21. X17-9. Alt. 40 ft.		
Lat. 43°00'55". Long. 70°46'30".		
Till:		
Clay, glacial.....	20.9	20.9
Sand and gravel.....	9.3	30.2
Refusal.....		30.2
SEABROOK 9. X15-1. Alt. 65 ft.		
Lat. 42°52'14". Long. 70°51'49".		
Ice-contact deposits:		
Gravel.....	12	12
Bedrock.....	138	150
SEABROOK 12. W16-9. Alt. 45 ft.		
Lat. 42°53'26". Long. 70°52'36".		
Outwash and shore deposits:		
Loam and subsoil.....	4.0	4.0
Sand, coarse, brown.....	0.5	4.5
Sand and clay, light brown....	6.0	10.5
Marine deposits:		
Clay, hard, gray.....	5.2	15.7
Clay, gray, and broken stones.	0.8	16.5
Bedrock.....		16.5
SEABROOK 13. W16-9. Alt. 47 ft.		
Lat. 42°53'27". Long. 70°52'39".		
Outwash and shore deposits:		
Loam.....	0.5	0.5
Sand, coarse; some gravel, fine.....	4.0	4.5
Sand and clay, gray.....	1.2	5.7
Sand and gravel, light brown..	2.8	8.5
Marine deposits:		
Clay, brown.	2.0	10.5
Sand, fine, and clay, gray....	14.5	25.0
Till:		
Sand, gravel, and clay, gray..	3.7	28.7
Refusal.....		28.7

RAYMOND

RA-1

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Raymond. Test No. #1-70

Address Water Dept

Well located at Well Field. in Raymond. County, State of New Hampshire

Date Drilling started 7/29/70 Date Test Hole Completed 7/29/70

Total depth to bottom of Well 62'-0" Diameter Test Hole 2½

Water stands when not pumping 12 feet 6 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	48	Fine brown sand small gravel & clay tight
48	52	Fine to med brown sand, gravel & traces of clay Pumped true & ply
52	62	Fine gray & brown sand, small shells gravel & clay tight
		Refusal 62'-0"

Tried setting screen 48' to 52'

Pipe caved at drill pipe could not get screen true

Did Well Clear Up? No

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

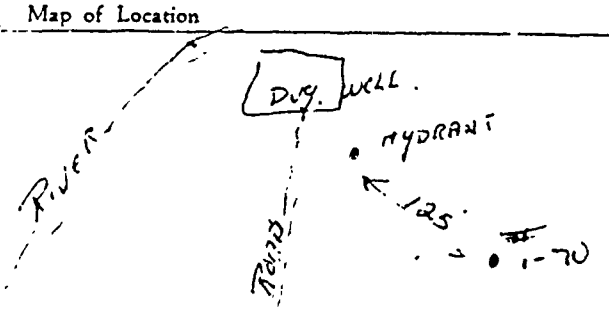
Time Required for Recovery?

Was Well Pulled? yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test Tried to develope open end well Kept pumping SAND.

Driller Matt Mooney

Helpers Tom McNeil

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Raymond Test No. #2-70

Address Water Dept

Well located at Well Field in Raymond County, State of New Hampshire

Date Drilling started 7/30/70 Date Test Hole Completed 7/31/70

Total depth to bottom of Well 63'-6" Diameter Test Hole 2½

Water stands when not pumping 18 feet 0 inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	52	Fine brown sand small gravel & clay tight.
52	63	Fine brown & gray sand small sharp gravel & clay tight
	Refusal 63'-6"	

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

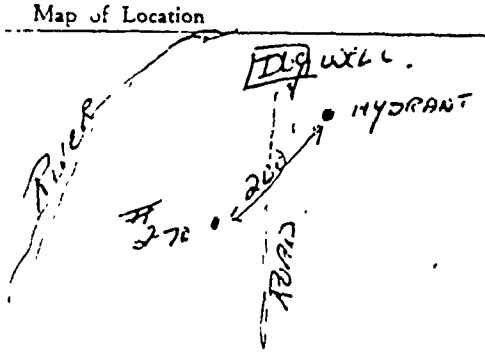
Time Required for Recovery?

Was Well Pulled? yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller Matt McGinley

Helpers Steve Kelley

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Raymond Test No. E3-70

Address Water Dept

Well located at Well Field in Raymond County, State of New Hampshire

Date Drilling started 7/31/70 Date Test Hole Completed 7/31/70

Total depth to bottom of Well 54'-0" Diameter Test Hole 2½

Water stands when not pumping 11' feet 0" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	49'	Fine brown sand small gravel & clay. tight.
49	53'	Fine to med brown sand large gravel & traces of clay Free
	Refusal 54'-0	

Did Well Clear U'p? yes

How Long? 6½ HR

Time Pumped? 1 HR

Drawdown — Ft. — In.

Capacity 25 GPM 26" SR

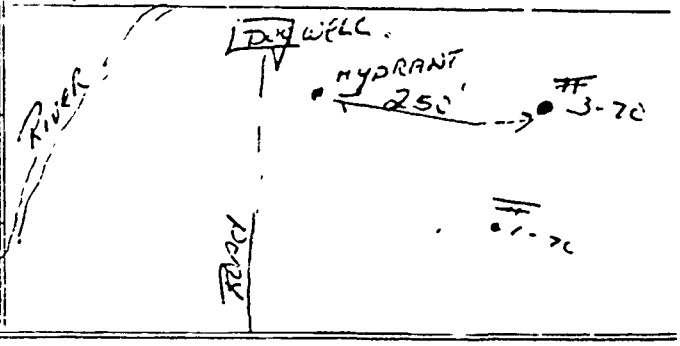
Time Required for Recovery? 10 min

Was Well Pulled? yes

Observation NO What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test Developed open end At 53'-0

Driller Mitt Hennessy

Helpers Steve Spencer

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Raymond Test No. #4 12

Address WATER Dept

Well located at Well Field in Raymond County, State of New Hampshire

Date Drilling started 8/3/70 Date Test Hole Completed 8/3/70

Total depth to bottom of Well 28'-6" Diameter Test Hole 2½

Water stands when not pumping 1'- feet 10" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0-	28'	Fine to med brown sand & gravel Free
	Refusal 28'-6"	
Developed well open end at 26-6 well pumped 60 GPM 7" VAC		

Did Well Clear Up? yes

How Long? 15 min

Time Pumped? 2 HRS took State Sample

Drawdown — Ft. — In.

Capacity 60 GPM. 7" VAC

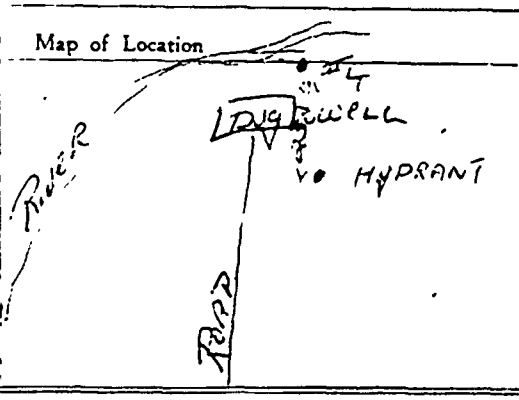
Time Required for Recovery? one min

Was Well Pulled? yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller Matt Mooney

Helpers Steve Kelly

ROCHESTER

RO-1

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

Return

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
MADBURY 43. W18-9. Alt. 50 ft. Lat. 43°09'36". Long. 70°54'26".		
Marine deposits:		
Topsoil	2	2
Clay	37	39
Sand, fine, and clay	37	76
Ice-contact deposits:		
Gravel, sandy	6	82
Refusal		82
MADBURY 44. W18-9. Alt. 35 ft. Lat. 43°09'30". Long. 70°54'20".		
Marine deposits:		
Topsoil	2	2
Clay, sandy	60	62
Ice-contact deposits:		
Sand, coarse, and gravel	11	73
Clay and sand, fine	6	79
Refusal		79
MADBURY 45. W18-9. Alt. 115 ft. Lat. 43°09'48". Long. 70°54'45".		
Outwash and shore deposits:		
Sand, fine	47	47
Refusal		47
MADBURY 46. W18-9. Alt. 120 ft. Lat. 43°09'47". Long. 70°54'45".		
Till:		
Topsoil	1	1
Clay, sandy; some gravel and stone	14	15
Refusal		15
MADBURY 47. W18-9. Alt. 33 ft. Lat. 43°09'08". Long. 70°53'16".		
Ice-contact deposits:		
Clay, sandy	18	18
Sand, fine and coarse	12	30
Sand, fine	30	60
Sand, coarse, and gravel	2	62
Refusal		62
MADBURY 48. W18-9. Alt. 31 ft. Lat. 43°09'04". Long. 70°53'18".		
Ice-contact deposits:		
Clay	5	5
Sand, coarse	17	22
Sand and gravel	9	31
MADBURY 49. W18-9. Alt. 31 ft. Lat. 43°09'03". Long. 70°53'16".		
Ice-contact deposits:		
Clay	3	3
Sand, coarse	7	10
Sand, fine, and gravel, and clay	28	38
MADBURY 50. W18-9. Alt. 22 ft. Lat. 43°08'58". Long. 70°53'31".		
Ice-contact deposits:		
Topsoil	3	3
Sand, coarse, brown	7	10
Sand, brown	13	23
Sand, clay, and gravel	7	30
Refusal		30
MADBURY 51. W18-9. Alt. 35 ft. Lat. 43°08'59". Long. 70°53'38".		
Marine deposits:		
Topsoil	1	1
Clay, sandy, fine, brown	22	23
Ice-contact deposits:		
Sand and gravel	7	30
Clay, sandy, and gravel (hardpan)	4	34
Refusal		34
MADBURY 52. W18-9. Alt. 25 ft. Lat. 43°08'58". Long. 70°53'39".		
Marine deposits:		
Clay, sandy, brown	3	3
Clay, soft, gray; some sand	22	25
Ice-contact deposits:		
Sand, fine, and gravel; streaks of clay	17	42
Refusal		42
MADBURY 53. W18-5. Alt. 160 ft. Lat. 43°11'08". Long. 70°55'35".		
Outwash and shore deposits:		
Sand	30	30
Marine deposits:		
Clay, sandy	27.7	57.7
MADBURY 54. W18-5. Alt. 200 ft. Lat. 43°11'04". Long. 70°55'56".		
Ice-contact deposits:		
Sand and gravel	50	50
Sand, fine	140	190
Bedrock	140	330
ROCHESTER 1. W19-1. Alt. 250 ft. Lat. 43°20'59". Long. 70°58'33".		
Outwash and shore deposits:		
Sand	20	20
Sand, very fine	6	26
ROCHESTER 6. W19-4. Alt. 225.54 ft. Lat. 43°19'02". Long. 70°59'22".		
Ice-contact deposits:		
Sand, silt, clay, brown; some gravel	5.0	5.0
Sand, fine to coarse, brown; some silt, micaceous; some gravel, fine to medium	17.3	22.3
Sand, medium to coarse, brown; some silt, micaceous, some gravel, fine to medium; trace of clay	10.7	33.0
Sand and gravel, fine to coarse, brown	5.0	38.0
Sand, coarse, brown; some gravel, fine; trace of clay	10.0	48.0
Sand, coarse, brown; some gravel, fine to coarse	11.0	59.0
Sand and gravel	6.0	65.0
ROCHESTER 8. W19-4. Alt. 235 ft. Lat. 43°18'18". Long. 70°58'35".		
Unconsolidated deposits, undifferentiated	80	80
Bedrock	127	207
ROCHESTER 9. W19-4. Alt. 223.09 ft. Lat. 43°19'02". Long. 70°59'20".		
Ice-contact deposits:		
Sand, coarse, reddish brown; some clay; some gravel, fine to medium	5	5
Gravel, medium; some sand, coarse	14	19
Sand, coarse, brown; some gravel, fine to medium; some boulders	7	26
Gravel, fine to medium; some sand, coarse, reddish brown	14	40
Boulders and gravel; some sand, coarse, brown	8	48
Sand, coarse, brown; some gravel, fine to medium	12	60
Sand, fine to medium, gray; some gravel, medium to coarse	16	76
Sand, coarse, brown; some gravel, fine to medium	10	86
Sand, fine to medium, mostly quartz, gray; some gravel, fine to medium; some silt	4	90
Gravel, fine to medium; some sand, medium to coarse, gray	9	99
Bedrock		99
ROCHESTER 18. W19-1. Alt. 245 ft. Lat. 43°20'44". Long. 70°58'29".		
Outwash and shore deposits:		
Sand	25	25
Marine deposits	65	90
Bedrock	170	260
ROCHESTER 21. W18-1. Alt. 200 ft. Lat. 43°14'32". Long. 70°58'09".		
Ice-contact deposits:		
Sand	90	90
Bedrock	190	280
ROCHESTER 22. W19-4. Alt. 225 ft. Lat. 43°19'03". Long. 70°59'25".		
Ice-contact deposits:		
Sand, fine to coarse, brown; some gravel, boulders, and clay	5.0	5.0
Sand, fine to coarse, gray; some gravel, fine to medium; some silt, micaceous	11.0	16.0
Sand, medium to coarse, gray; some gravel, fine to coarse; silt and boulders	10.5	26.5
Sand, medium to coarse, gray; some clay; some silt, micaceous; some gravel, fine to medium	6.0	32.5
Sand, medium to coarse, gray; some gravel, fine to medium; some silt, micaceous; a little clay; a few boulders.	10.5	43.0
Sand, medium to coarse, gray; some gravel, fine to medium.	9.5	52.5
Sand, fine to coarse, gray; some silt, micaceous	4.5	57.0
Sand, fine to coarse, gray; some gravel, fine	9.0	66.0
Gravel, fine to medium; some sand, coarse, gray	8.5	74.5
Gravel, fine to medium; some sand, coarse, gray; some silt, micaceous	7.5	82.0
Sand, medium to coarse, gray; some silt, micaceous; some gravel and clay	4.0	86.0
Sand, medium to coarse; some silt	3.5	89.5
Sand, fine to medium; silt and clay	4.5	94.0
Bedrock		94.0
ROCHESTER 23. W19-4. Alt. 222.0 ft. Lat. 43°19'05". Long. 70°59'23".		
Ice-contact deposits:		
Sand, medium to coarse, brown; some silt; some gravel, medium	4.0	4.0
Sand, coarse, brown; some gravel, fine to medium	4.0	8.0
Sand, medium to coarse, gray; a little gravel; some silt and clay	5.0	13.0
Sand, fine to medium, gray; some silt	13.0	26.0
Sand, coarse, gray; some gravel, fine to medium	28.5	54.5
Sand, coarse, gray; some gravel; some small boulders.	6.0	60.5
Gravel, fine to coarse; some sand, coarse, gray; some silt, micaceous	30.0	90.5
ROCHESTER 24. W19-4. Alt. 226.0 ft. Lat. 43°19'01". Long. 70°59'16".		
Ice-contact deposits:		
Sand, coarse, reddish brown; some gravel, fine to coarse; some clay	8	8
Sand, coarse, light brown; some gravel, fine to coarse; some silt, micaceous	17	25
Sand, medium to coarse, gray; some gravel, fine; some silt, micaceous	5	30
Sand, fine to medium, gray	13	43
Silt, micaceous; some clay, blue	1	44
Sand, fine to medium, gray; some silt, micaceous	9	53
Sand, fine to coarse, gray; some gravel, fine to medium; some silt, micaceous	19	72
Gravel, fine to medium; a little sand, gray	17	89
Sand, coarse, gray, some gravel, fine to coarse	5	94
Bedrock		94

Probably Rock Well

ROCHESTER

RO-2

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

UNITED STATES DEPARTMENT
GEOLOGICAL SURVEY

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1962

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
DOVER 69. W18-9. Alt. 125 ft. Lat. 43°00'43". Long. 70°52'31".		
Unconsolidated deposits, undifferentiated	40	40
Bedrock	89	129
DOVER 70. W18-7. Alt. 80 ft. Lat. 43°09'45". Long. 70°51'58".		
Unconsolidated deposits, undifferentiated	20	20
Bedrock	20	40
DOVER 71. W18-6. Alt. 55 ft. Lat. 43°11'39". Long. 70°52'36".		
Unconsolidated deposits, undifferentiated	25	25
Bedrock	198	223
DOVER 72. W18-2. Alt. 150 ft. Lat. 43°13'25". Long. 70°57'20".		
Ice-contact deposits:		
Sand and gravel, gray; some clay	16	16
Gravel, brown (good water-bearing material)	17	33
Sand, gray; some clay	27	60
Till:		
Hardpan	1	61
Bedrock		61
DOVER 73. W18-9. Alt. 105 ft. Lat. 43°09'19". Long. 70°52'40".		
Unconsolidated deposits, undifferentiated	20	20
Bedrock	86	106
DOVER 74. W18-9. Alt. 95 ft. Lat. 43°09'56". Long. 70°53'38".		
Marine deposits:		
Clay	38	38
Silt	10	48
Ice-contact deposits:		
Clay, sandy; some sand, fine	6	54
Refusal		54
DOVER 75. W18-7. Alt. 42 ft. Lat. 43°08'00". Long. 70°50'14".		
Unconsolidated deposits, undifferentiated:		
Gravel, coarse	5	5
Marine deposits:		
Clay	25	30
Ice-contact deposits:		
Sand, fine	28	58
Refusal		58
DOVER 76. W18-7 Alt. 12 ft. Lat. 43°07'-2" Long. 70°50'12".		
Marine deposits		
Sand, fine	5	5
Clay	25	30
Ice-contact deposits:		
Gravel	13	43
DOVER 77. W18-7. Alt. 125 ft. Lat. 43°08'58". Long. 70°52'24". (Log starts at bottom of gravel pit about 20 ft. below original land surface		
Ice-contact deposits:		
Sand, fine	10	10
Gravel, coarse, dry	26	36
Bedrock		36
DOVER 78. W18-7 Alt. 8 ft. Lat. 43°07'58". Long. 70°50'12".		
Marine deposits		
Sand	10	10
Clay, very soft	28	38
Sand, fine, and silt	8	46
Ice-contact deposits:		
Sand and gravel	40	86
Bedrock (assumed)		86
DOVER 79. W18-7. Alt. 10 ft. Lat. 43°07'40". Long. 70°50'30".		
Marine deposits:		
Sand	10	10
Clay, very soft	60	70
Ice-contact deposits:		
Sand	9	79
Bedrock (assumed)		79
DOVER 80. W18-3. Alt. 203 ft. Lat. 43°13'43". Long. 70°53'53"		
Ice-contact deposits:		
Sand and gravel	90	90
Bedrock	505	595
DOVER 81. W18-5. Alt. 145 ft. Lat. 43°11'11". Long. 70°55'29".		
Marine deposits:		
Sand, fine	30.0	30.0
Sand and clay	57.5	87.5
DOVER 82. W18-9. Alt. 100 ft. Lat. 43°09'52". Long. 70°53'59".		
Outwash and shore deposits:		
Clay and sand, gray	10	10
Marine deposits:		
Clay and sand, brown	35	45
Sand, clay, and gravel	20	65
Ice-contact deposits:		
Sand and gravel	35	100
Bedrock		100
DOVER 83. W18-2. Alt. 135 ft. Lat. 43°13'21". Long. 70°57'07".		
Ice-contact deposits:		
Fill	10	10
Sand and gravel	71	81
Till:		
Hardpan	10	91
Bedrock		91
DOVER 84. W18-6. Alt. 160 ft. Lat. 42°10'04". Long. 70°54'07".		
Ice-contact deposits:		
Sand, fine; scattered gravel	140.0	140.0
Unconsolidated deposits, undifferentiated:		
Clay	20.0	160.0
Gravel	8.5	168.5
Bedrock		168.5
DURHAM 5. W18-8. Alt. 30 ft. Lat. 43°08'09". Long. 70°56'10".		
Till:		
Sand and rocks	10	10
Bedrock:		
Exeter diorite	488	498
DURHAM 6. W18-8. Alt. 27 ft. Lat. 43°08'12". Long. 70°56'14".		
Unconsolidated deposits, undifferentiated	4	4
Bedrock:		
Exeter diorite	546	550
DURHAM 7. W18-8. Alt. 37 ft. Lat. 43°08'31". Long. 70°55'08".		
Marine deposits:		
Clay	50	50
Sand, fine	5	55
Clay	30	85
Bedrock	110	195
DURHAM 8. W17-1. Alt. 95 ft. Lat. 43°07'12". Long. 70°58'01".		
Marine deposits:		
Topsoil	4	4
Clay, brown	6	10
Sand, fine, traces of clay	18	31
Ice-contact deposits:		
Sand, medium to coarse; some gravel	22	53
Sand, fine, tight	5	58
DURHAM 10. W18-7. Alt. 95 ft. Lat. 43°07'36". Long. 70°58'12".		
Ice-contact deposits:		
Topsoil	6.0	6.0
Sand, coarse, and gravel, medium, trace of clay	10.0	16.0
Sand, coarse, and gravel, medium	10.0	26.0
Sand, coarse	5.0	31.0
Sand, coarse, and gravel, fine; trace of clay	15.0	46.0
Coarse material, no sample recovery	5.0	51.0
Sand, fine, and clay	36.8	87.8
DURHAM 11. W18-7. Alt. 80 ft. Lat. 43°07'42". Long. 70°57'50".		
Marine deposits:		
Topsoil	4.0	4.0
Clay, blue	19.0	23.0
Sand, fine, brown	4.0	27.0
Clay, blue	8.0	35.0
Sand, fine, brown	5.0	40.0
Till:		
Sand, fine, gray, and clay; gravel, sharp	7.5	47.5
Refusal		47.5
DURHAM 12. W17-1. Alt. 75 ft. Lat. 43°08'00". Long. 70°57'40".		
Marine deposits:		
Clay, firm	10.0	10.0
Till:		
Clay and boulders	10.3	20.3
Refusal		20.3
DURHAM 13. W18-9. Alt. 10 ft. Lat. 43°08'05". Long. 70°53'19".		
Marine deposits:		
Clay	50	50
Sand	10	60
Bedrock	116	176
FARMINGTON 1. V20-8. Alt. 255 ft. Lat. 43°22'37". Long. 71°02'45".		
Ice-contact deposits:		
Sand and gravel	55	55
FARMINGTON 2. V20-8. Alt. 257 ft. Lat. 43°22'47". Long. 71°02'56".		
Ice-contact deposits:		
Sand, fine	15	15
Bedrock	4	19
FARMINGTON 4. V19-3. Alt. 285 ft. Lat. 43°21'28". Long. 71°01'50".		
Ice-contact deposits:		
Sand and gravel	26	26
FARMINGTON 5. V19-2. Alt. 285 ft. Lat. 43°22'13". Long. 71°02'35".		
Ice-contact deposits:		
Sand and gravel, coarse, cobbly	40	40
Sand	25	65
Gravel, coarse	13	78
Bedrock	145	223
LEE 4. W18-7. Alt. 112 ft. Lat. 43°09'16". Long. 70°59'08".		
Ice-contact deposits:		
Topsoil	5.0	5.0
Sand, medium, brown, and gravel	11.0	16.0
Sand, medium, gray, and gravel	10.0	26.0
Sand, coarse, gray, and gravel	6.0	32.0
Sand, medium, gray, and gravel	6.0	38.0
Sand, coarse, and broken rock, brown	5.0	43.0
Sand, medium, and gravel	4.5	47.5
Sand, coarse, and gravel	3.5	51.0
Refusal		51.0
LEE 5. W18-7. Alt. 112 ft. Lat. 43°09'16". Long. 70°59'09".		
Ice-contact deposits:		
Loam and sand	1.5	1.5
Sand, medium to coarse	36.5	38.0
Sand, coarse, and gravel, fine, a trace of clay	7.0	45.0
Sand, coarse; some gravel, fine	3.0	48.0
LEE 10. V17-3. Alt. 190 ft. Lat. 43°07'17". Long. 71°00'48".		
Ice-contact deposits:		
Sand and gravel	75	75
Bedrock:		
Elliot formation	79	154
LEE 11. V17-3. Alt. 195 ft. Lat. 43°07'27". Long. 71°00'34".		
Ice-contact deposits:		
Sand and gravel	45	45
Bedrock	75	120

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
LEE 12. W17-1. Alt. 80 ft.		
Lat. 43°05'27". Long. 70°58'46".		
Marine deposits:		
Clay	25	25
Bedrock	71	96
LEE 13. W18-7. Alt. 105 ft.		
Lat. 43°07'41". Long. 70°58'17".		
Marine deposits:		
Topsoil	4.0	4.0
Clay, light	7.0	11.0
Ice-contact deposits:		
Sand, fine to medium, and gravel	5.0	16.0
Gravel; a trace of clay	6.0	22.0
Sand, fine to medium	25.0	47.0
Sand, fine	3.0	50.0
Sand, fine to medium, gray	19.5	69.5
LEE 14. W18-7. Alt. 83 ft.		
Lat. 43°07'38". Long. 70°58'31".		
Marine deposits:		
Clay, brown	12.0	12.0
Clay, gray	21.0	33.0
Sand, fine, gray	10.5	43.5
Till:		
Sand, fine, gray, and gravel, fine, sharp	15.3	58.8
Refusal		58.8
LEE 15. W18-7. Alt. 80 ft.		
Lat. 43°07'48". Long. 70°58'13".		
Marine deposits:		
Clay, firm	7.0	7.0
Sand, fine, silty	12.0	19.0
Sand, fine, gray	15.5	34.5
Refusal		34.5
LEE 16. W18-7. Alt. 100 ft.		
Lat. 43°07'42". Long. 70°58'26".		
Ice-contact deposits:		
Sand, coarse, and gravel	23	23
Clay, gray	2	25
Sand, fine, tight	12	37
Refusal		37
LEE 17. W18-7. Alt. 85 ft.		
Lat. 43°08'00". Long. 70°58'27".		
Marine deposits:		
Topsoil; some clay	8	8
Sand, fine	33	41
Ice-contact deposits:		
Sand coarse, and gravel, sharp	4	45
Refusal		45
LEE 18. W18-7. Alt 65 ft.		
Lat. 43°08'21". Long. 70°58'13".		
Marine deposits:		
Clay, firm, brown	28.0	28.0
Clay, gray	20.0	48.0
Ice-contact deposits:		
Sand, fine, brown	12.0	60.0
Sand, fine, gray	14.9	74.9
Refusal		74.9
LEE 19. W18-7. Alt. 72 ft.		
Lat. 43°08'38". Long. 70°58'17".		
Marine deposits:		
Topsoil	4	4
Clay, gray	17	21
Sand, fine, and clay	7	28
Refusal		28
LEE 20. W18-7. Alt. 97 ft.		
Lat. 43°08'58". Long. 70°58'23"		
Marine deposits.		
Topsoil	4	4
Clay, gray	12	16
Clay and sand, fine	12	28
Ice-contact deposits:		
Sand, fine, brown, and gravel, sharp, black	4	32
Refusal		32
LEE 21. W18-7. Alt. 80 ft.		
Lat. 43°08'55". Long. 70°58'08".		
Marine deposits:		
Clay	25	25
Till:		
Clay and gravel, sharp	5	30
Gravel, coarse, black	5	35
Refusal		35
LEE 22. W17-1. Alt. 80 ft.		
Lat. 43°05'00". Long. 70°58'30".		
Unconsolidated deposits, undifferentiated:		
Clay and boulders	14	14
Refusal		14
LEE 23. W18-7. Alt. 113.4 ft.		
Lat. 43°09'12". Long. 70°59'07".		
Ice-contact deposits:		
Topsoil	3.0	3.0
Sand, fine to medium, some gravel	8.0	11.0
Sand, fine to medium	10.0	21.0
Gravel, medium to coarse, dark brown	2.0	23.0
Sand, fine to medium	20.0	43.0
Sand, medium to coarse	5.0	48.0
Sand, fine; scattered gravel	7.0	55.0
Sand, fine	1.5	56.5
Refusal		56.5
LEE 24. W18-7. Alt. 118.02 ft.		
Lat. 43°09'13". Long. 70°59'04".		
Ice-contact deposits:		
Loam and boulders	5	5
Sand, gravel, and boulders	10	15
Sand, coarse, and gravel	33	48
Till:		
Sand, medium-to-coarse, and gravel, sharp; a little clay	3	51
Refusal		51
LEE 25. W18-7. Alt. 110.6 ft.		
Lat. 43°09'17". Long. 70°59'07".		
Ice-contact deposits:		
Loam and sand	1	1
Sand, medium to coarse	19	20
Sand, medium, and gravel, sharp	11	31
Sand, medium to coarse; a little clay	13	44
Sand and gravel, coarse	4	48
Refusal		48
LEE 26. W18-7. Alt. 111.74 ft.		
Lat. 43°09'24". Long. 70°59'08".		
Ice-contact deposits:		
Sand and clay	2.0	2.0
Sand, medium, a little clay	25.0	27.0
Clay, firm	1.5	28.5
Sand, medium; a little clay	13.5	42.0
Sand, medium to coarse, and gravel, medium	6.0	48.0
LEE 27. W18-9. Alt. 100 ft		
Lat. 43°09'33". Long. 71°00'20".		
Geologist's log. (Log starts at bottom of gravel pit about 20 ft below original surface.)		
Ice-contact deposits		
Sand, very fine, some sand, medium, a little silt, brown	25	25
Sand very fine, a little silt, brown	13	38
Refusal		38
LEE 28. W17-3. Alt. 100 ft		
Lat. 43°05'35". Long. 71°01'00".		
Geologist's log (log starts at bottom of pit about 5 ft below original land surface.)		
Outwash and shore deposits:		
Sand, medium to coarse, brown to buff	14	14
Sand, fine to medium, brown to buff	6	20
Marine deposits.		
Silt and clay, light gray; some sand in streaks	10	30
Silt and clay, blue-gray, plastic; occasional sand streak in it	0	30
MADBURY 1. W18-9. Alt. 30.72 ft.		
Lat. 43°08'59". Long. 70°53'24".		
Ice-contact deposits:		
Sand and gravel	40	40
Refusal		40
MADBURY 2. W18-9. Alt. 33.01 ft.		
Lat. 43°09'01". Long. 70°53'20".		
Ice-contact deposits:		
Sand, fine	20	20
Sand, coarse, and gravel	30	50
Sand, fine	5	55
Till:		
Hardpan	5	60
Refusal		60
MADBURY 3. W18-9. Alt. 31.33 ft.		
Lat. 43°09'03". Long. 70°53'20".		
Ice-contact deposits:		
Clay	5	5
Clay, sandy	5	10
Sand, coarse	20	30
Sand and gravel	16	46
Sand and gravel, gray	8	54
Refusal		54
MADBURY 4. W18-9. Alt. 32.66 ft.		
Lat. 43°09'08". Long. 70°53'18".		
Ice-contact deposits:		
Clay	8	8
Gravel, fine, sandy	35	43
Sand, coarse, and gravel	17	60
Refusal		60
MADBURY 5. W18-9. Alt. 47.35 ft.		
Lat. 43°09'14". Long. 70°53'19".		
Marine deposits.		
Topsoil	2	2
Clay, gray; some sand	51	53
Clay, sandy, fine, gray	5	58
Ice-contact deposits:		
Sand, coarse, brown, and gravel	4	62
Refusal		62
MADBURY 6. W18-9. Alt. 35.10 ft.		
Lat. 43°09'20". Long. 70°53'20".		
Marine deposits		
Topsoil	2	2
Clay, gray	26	28
Sand and clay	14	42
Ice-contact deposits:		
Sand, gray	16	58
Sand, coarse, brown, and gravel	32	90
Till:		
Hardpan	1	91
MADBURY 7. W18-9. Alt. 137.67 ft.		
Lat. 43°11'20". Long. 70°55'47".		
Ice-contact deposits.		
Gravel, coarse	43.8	43.8
MADBURY 8. W18-9. Alt. 105 ft.		
Lat. 43°09'35". Long. 70°53'45".		
Ice-contact deposits:		
Loam, sandy	6	6
Bedrock	123	129
MADBURY 9. W18-9. Alt. 105 ft.		
Lat. 43°11'40". Long. 70°55'54".		
Marine deposits		
Clay, sandy, fine, brown; some gravel	10	10
Clay, sandy, fine, gray	74	84
Ice-contact deposits:		
Sand, fine, and gravel	4	88
Refusal		88
MADBURY 11. W18-9. Alt. 31.1 ft.		
Lat. 43°08'59". Long. 70°53'24".		
Ice-contact deposits:		
Sand, gravel, and cobbles	38	38
Bedrock		38
MADBURY 12. W18-9. Alt. 32.7 ft.		
Lat. 43°09'01". Long. 70°53'20".		
Ice-contact deposits:		
Sand, fine	20	20
Sand, coarse, and gravel	25	45

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

	Thickness (Feet)	Depth (Feet)
MADBURY 43. W18-9. Alt. 50 ft.		
Lat. 43°09'36". Long. 70°54'26".		
Marine deposits:		
Topsoil	2	2
Clay	37	39
Sand, fine, and clay	37	76
Ice-contact deposits:		
Gravel, sandy	6	82
Refusal		82
MADBURY 44. W18-9. Alt. 35 ft.		
Lat. 43°09'30". Long. 70°54'20".		
Marine deposits:		
Topsoil	2	2
Clay, sandy	60	62
Ice-contact deposits:		
Sand, coarse, and gravel	11	73
Clay and sand, fine	6	79
Refusal		79
MADBURY 45. W18-9. Alt. 115 ft.		
Lat. 43°09'48". Long. 70°54'45".		
Outwash and shore deposits:		
Sand, fine	47	47
Refusal		47
MADBURY 46. W18-9. Alt. 120 ft		
Lat. 43°09'47". Long. 70°54'45".		
Till:		
Topsoil	1	1
Clay, sandy; some gravel and stone	14	15
Refusal		15
MADBURY 47. W18-9. Alt. 33 ft.		
Lat. 43°09'08". Long. 70°53'16".		
Ice-contact deposits:		
Clay, sandy	18	18
Sand, fine and coarse	12	30
Sand, fine	30	60
Sand, coarse, and gravel	2	62
Refusal		62
MADBURY 48. W18-9. Alt. 31 ft.		
Lat. 43°09'04". Long. 70°53'18".		
Ice-contact deposits:		
Clay	5	5
Sand, coarse	17	22
Sand and gravel	9	31
MADBURY 49. W18-9. Alt. 31 ft.		
Lat. 43°09'03". Long. 70°53'16".		
Ice-contact deposits:		
Clay	3	3
Sand, coarse	7	10
Sand, fine, and gravel, and clay	28	38
MADBURY 50. W18-9. Alt. 22 ft.		
Lat. 43°08'58". Long. 70°53'31".		
Ice-contact deposits:		
Topsoil	3	3
Sand, coarse, brown	7	10
Sand, brown	13	23
Sand, clay, and gravel	7	30
Refusal		30
MADBURY 51. W18-9. Alt. 35 ft.		
Lat. 43°08'59". Long. 70°53'38".		
Marine deposits:		
Topsoil	1	1
Clay, sandy, fine, brown	22	23
Ice-contact deposits:		
Sand and gravel	7	30
Clay, sandy, and gravel (hardpan)	4	34
Refusal		34
MADBURY 52. W18-9. Alt. 25 ft.		
Lat. 43°08'58". Long. 70°53'39".		
Marine deposits:		
Clay, sandy, brown	3	3
Clay, soft, gray; some sand	22	25
Ice-contact deposits:		
Sand, fine, and gravel; streaks of clay	17	42
Refusal		42
MADBURY 53. W18-5. Alt. 160 ft.		
Lat. 43°11'08". Long. 70°55'35".		
Outwash and shore deposits:		
Sand	30	30
Marine deposits:		
Clay, sandy	27.7	57.7
MADBURY 54. W18-5. Alt. 200 ft.		
Lat. 43°11'04". Long. 70°55'56".		
Ice-contact deposits:		
Sand and gravel	50	50
Sand, fine	140	190
Bedrock	140	330
ROCHESTER 1. W19-1. Alt. 250 ft.		
Lat. 43°20'59". Long. 70°58'33".		
Outwash and shore deposits:		
Sand	20	20
Sand, very fine	6	26
ROCHESTER 6. W19-4. Alt. 225.54 ft.		
Lat. 43°19'02". Long. 70°59'22".		
Ice-contact deposits:		
Sand, silt, clay, brown; some gravel	5.0	5.0
Sand, fine to coarse, brown; some silt, micaceous; some gravel, fine to medium	17.3	22.3
Sand, medium to coarse, brown; some silt, micaceous, some gravel, fine to medium; trace of clay	10.7	33.0
Sand and gravel, fine to coarse, brown	5.0	38.0
Sand, coarse, brown; some gravel, fine; trace of clay	10.0	48.0
Sand, coarse, brown; some gravel, fine to coarse	11.0	59.0
Sand and gravel	6.0	65.0
ROCHESTER 8. W19-4. Alt. 235 ft.		
Lat. 43°18'18". Long. 70°58'35".		
Unconsolidated deposits, undifferentiated	80	80
Bedrock	127	207
ROCHESTER 9. W19-4. Alt. 223.09 ft.		
Lat. 43°19'02". Long. 70°59'20".		
Ice-contact deposits:		
Sand, coarse, reddish brown; some clay; some gravel, fine to medium	5	5
Gravel, medium; some sand, coarse	14	19
Sand, coarse, brown; some gravel, fine to medium; some boulders	7	26
Gravel, fine to medium; some sand, coarse, reddish brown.	14	40
Boulders and gravel; fine sand, coarse, brown	8	48
Sand, coarse, brown; some gravel, fine to medium	12	60
Sand, fine to medium, gray; some gravel, medium to coarse	16	76
Sand, coarse, brown; some gravel, fine to medium	10	86
Sand, fine to medium, mostly quartz, gray; some gravel, fine to medium; some silt	4	90
Gravel, fine to medium; some sand, medium to coarse, gray	9	99
Bedrock		99
ROCHESTER 18. W19-1. Alt. 245 ft.		
Lat. 43°20'44". Long. 70°58'29".		
Outwash and shore deposits:		
Sand	25	25
Marine deposits	65	90
Bedrock	170	260
ROCHESTER 21. W18-1. Alt. 200 ft.		
Lat. 43°14'32". Long. 70°58'09".		
Ice-contact deposits:		
Sand	90	90
Bedrock	190	280
ROCHESTER 22. W19-4. Alt. 225 ft.		
Lat. 43°19'03". Long. 70°59'25".		
Ice-contact deposits:		
Sand, fine to coarse, brown; some gravel, boulders, and clay	5.0	5.0
Sand, fine to coarse, gray; some gravel, fine to medium; some silt, micaceous	11.0	16.0
Sand, medium to coarse, gray; some gravel, fine to coarse; silt and boulders	10.5	26.5
Sand, medium to coarse, gray; some clay; some silt, micaceous; some gravel, fine to medium	6.0	32.5
Sand, medium to coarse, gray; some gravel, fine to medium; some silt, micaceous; a little clay; a few boulders.	10.5	43.0
Sand, medium to coarse, gray; some gravel, fine to medium.	9.5	52.5
Sand, fine to coarse, gray; some silt, micaceous	4.5	57.0
Sand, fine to coarse, gray; some gravel, fine	9.0	66.0
Gravel, fine to medium; some sand, coarse, gray	8.5	74.5
Gravel, fine to medium; some sand, coarse, gray; some silt, micaceous	7.5	82.0
Sand, medium to coarse, gray; some silt, micaceous; some gravel and clay	4.0	86.0
Sand, medium to coarse; some silt	3.5	89.5
Sand, fine to medium; silt and clay	4.5	94.0
Bedrock		94.0
ROCHESTER 23. W19-4. Alt. 222.0 ft.		
Lat. 43°19'05". Long. 70°59'23".		
Ice-contact deposits:		
Sand, medium to coarse, brown; some silt; some gravel, medium	4.0	4.0
Sand, coarse, brown; some gravel, fine to medium	4.0	8.0
Sand, medium to coarse, gray; a little gravel; some silt and clay	5.0	13.0
Sand, fine to medium, gray; some silt	13.0	26.0
Sand, coarse, gray; some gravel, fine to medium	28.5	54.5
Sand, coarse, gray; some gravel; some small boulders.	6.0	60.5
Gravel, fine to coarse; some sand, coarse, gray; some silt, micaceous	30.0	90.5
ROCHESTER 24. W19-4. Alt. 226.0 ft.		
Lat. 43°19'01". Long. 70°59'16".		
Ice-contact deposits:		
Sand, coarse, reddish-brown; some gravel, fine to coarse; some clay	8	8
Sand, coarse, light brown; some gravel, fine to coarse, some silt, micaceous	17	25
Sand, medium to coarse, gray; some gravel, fine; some silt, micaceous	5	30
Sand, fine to medium, gray	13	43
Silt, micaceous; some clay, blue	1	44
Sand, fine to medium, gray; some silt, micaceous	9	53
Sand, fine to coarse, gray; some gravel, fine to medium; some silt, micaceous	19	72
Gravel, fine to medium; a little sand, gray	17	89
Sand, coarse, gray; some gravel, fine to coarse	5	94
Bedrock		94

Table 4.--Logs of selected wells and test holes in southeastern New Hampshire--Continued

STRAFFORD COUNTY (Continued)

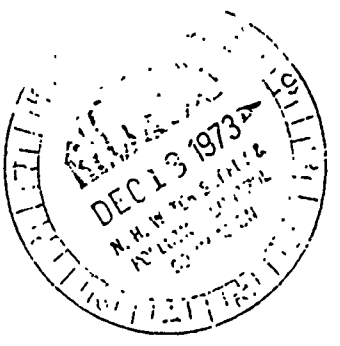
	Thickness (Feet)	Depth (Feet)
ROCHESTER 25. W19-4. Alt. 221.56 ft. Lat. 43°18'46". Long. 70°59'26".		
Recent alluvium:		
Sand, fine to coarse, brown; some gravel, fine to medium..	21.8	21.8
Outwash and shore deposits:		
Sand, medium to coarse.....	9.7	31.5
Sand, medium to coarse, and balls of clay, blue.....	8.5	40.0
Marine deposits:		
Clay, blue.....	20.0	60.0
ROCHESTER 26. W19-7. Alt. 104.2 ft. Lat. 43°16'42". Long. 70°58'07".		✓
Outwash and shore deposits:		
Sand, coarse, and gravel, fine.	9	9
Marine deposits:		
Sand, fine, silt, and clay, stratified.....	29	38
Clay, very soft.....	46	84
Sand.....	5	89
Clay, soft.....	14	103
Ice-contact deposits:		
Sand.....	23	126
ROCHESTER 27. W19-7. Alt. 177.5 ft. Lat. 43°16'46". Long. 70°58'34".		✓
Recent alluvium:		
Topsoil.....	1.5	1.5
Sand, fine.....	3.5	5.0
Sand, medium to coarse.....	8.5	13.5
Marine deposits:		
Clay, soft.....	20.0	33.5
Ice-contact deposits:		
Sand, fine to medium.....	50.5	84.0
Refusal.....		84.0
ROCHESTER 28. W19-7. Alt. 173.7 ft. Lat. 43°16'47". Long. 70°58'40".		✓
Swamp deposits:		
Muck.....	5	5
Marine deposits:		
Clay, soft.....	11	16
Ice-contact deposits:		
Sand, fine to medium.....	23	39
Sand, coarse, and gravel, fine.	46	85
Sand, fine.....	9	94
ROLLINSFORD 8. X18-1. Alt. 118 ft. Lat. 43°13'57". Long. 70°50'32". Geologist's log.		
Marine deposits:		
Silt and clay, gray to olive-drab.....	14	14
Silt and clay, light gray ...	3	17
Silt and clay, plastic, blue-gray.....	4	21
Silt and clay, plastic, blue-gray; contains scattered gravel.....	2	23
Ice-contact deposits:		
Clay, silt, sand, and gravel, angular, gray.....	1	24
Refusal.....		24
ROLLINSFORD 9. X18-1. Alt. 128 ft. Lat. 43°13'48". Long. 70°50'20". Geologist's log.		
Outwash and shore deposits:		
Loam, sandy, brown.....	1.5	1.5
Sand, medium to coarse, micaceous, brown.....	8.5	10.0
Sand, coarse to very coarse, micaceous, brown	4 0	14.0
Sand, medium to coarse, micaceous, brown.....	3.0	17.0
Sand, fine to medium, micaceous, brown.....	20.0	37.0
Sand, very fine to fine; some silt, light gray, laminated.....	12.0	49.0
ROLLINSFORD 10. X18-1. Alt. 130 ft. Lat. 43°13'52". Long. 70°50'25". Geologist's log.		
Outwash and shore deposits.		
Artificial fill.....	2.5	2.5
Sand, fine to medium, micaceous, moderately clean to dirty, rusty brown.....	9.5	12.0
Sand, very fine to fine; some silt; a little scattered sand, coarse.....	10.0	22.0
ROLLINSFORD 10.--Continued		
Marine deposits:		
Silt and clay, gray to light gray.....	27.0	49.0
ROLLINSFORD 11. W18-3. Alt. 175 ft. Lat. 43°13'25". Long. 70°52'54".		
Marine deposits:		
Sand, fine.....	40	40
Clay, sandy.....	32	72
Refusal.....		72
ROLLINSFORD 12. W18-3. Alt. 175 ft. Lat. 43°13'23" Long. 70°52'59".		
Marine deposits.		
Sand.....	20	20
Clay.....	8	28
Refusal.....		28
SOMERSWORTH 4. W10-9. Alt. 185 ft. Lat. 43°16'55". Long. 70°54'04".		
Ice-contact deposits:		
Topsoil.....	3	3
Sand, medium, light.....	2	5
Sand, medium to coarse, red...	5	10
Sand, medium, gray.....	5	15
Sand, fine, gray.....	5	20
Sand, fine, gray; some silt...	5	25
Sand, very fine, gray; some silt.....	10	35
Sand, very fine, gray; some clay, blue.....	15	50
Sand, fine to medium; some silt.....	10	60
Gravel, fine, and clay, yellow; some silt.....	5	65
Sand, very fine, yellow, and silt.....	5	70
Till:		
Sand, bluish, and clay.....	5	75
Bedrock.....		75
SOMERSWORTH 5. W19-9. Alt. 183 ft. Lat. 43°16'54". Long. 70°54'08".		
Ice-contact deposits:		
Sand and loam	5	5
Sand, medium to coarse, red...	5	10
Sand, coarse.....	7	17
Sand, fine, brown and yellow; some silt.....	8	25
Sand, coarse, red.....	5	30
Gravel and sand, mixed...	14	44
Sand, coarse, red.....	6	50
SOMERSWORTH 6. W18-3. Alt. 215 ft. Lat. 43°14'05". Long. 70°53'57".		
Unconsolidated deposits, undifferentiated.....	28	28
Bedrock.....	97	125
SOMERSWORTH 7. W18-3. Alt. 220 ft. Lat. 43°14'17". Long. 70°53'53".		
Unconsolidated deposits, undifferentiated.....	6	6
Bedrock.....	80	86
SOMERSWORTH 12. X18-1. Alt. 180 ft. Lat. 43°14'34". Long. 70°52'15".		
Ice-contact deposits:		
Sand, very fine, white.....	10	10
Sand, very fine, white; stratified layers about 2' thick of sand, fine, and clay, gray.....	10	20
Sand, very fine, gray, some clay and silt.....	5	25
Sand, very fine, hard, gray; some clay.....	5	30
Clay, hard, gray.....	3	33
Refusal.....		33
SOMERSWORTH 13. X18-1. Alt. 160 ft. Lat. 43°14'35". Long. 70°52'05".		
Marine deposits.		
Topsoil.....	1.0	1.0
Gravel, fine, and sand, coarse	1.5	2.5
Clay; a little sand, fine.....	17.5	20.0
Clay, hard, blue-gray, and silt.....	13.0	33.0
SOMERSWORTH 13.--Continued		
Ice-contact deposits:		
Sand, coarse, hard, black, and clay; a little silt (flow 10 gpm).....	7.0	40.0
Sand, coarse, hard, black.....	3.0	43.0
Bedrock.....		43.0
SOMERSWORTH 14. X18-1. Alt. 150 ft. Lat. 43°14'31" Long. 70°51'52".		
Marine deposits:		
Topsoil.....	1	1
Clay, heavy, gray.....	9	10
Clay; some sand.....	5	15
Gravel, black, and sand, fine.	1	16
Bedrock.....		16
SOMERSWORTH 15. X18-1. Alt. 150 ft. Lat. 43°14'36". Long. 70°51'59".		
Marine deposits.		
Topsoil.....	1.0	1.0
Clay, soft, yellow; some sand and silt.....	11.0	12.0
Clay, hard, gray.....	8.0	20.0
Clay, hard, gray; soft and hard layers.....	15.0	35.0
Clay, hard, gray; soft and hard layers and some silt and sand.....	14.0	49.0
Gravel.....	0.3	49.3
Bedrock.....		49.3
SOMERSWORTH 16. X18-1. Alt. 155 ft. Lat. 43°14'47". Long. 70°51'57".		
Marine deposits:		
Topsoil.....	1	1
Clay.....	6	7
Bedrock.....		7
SOMERSWORTH 17. X18-1. Alt. 190 ft. Lat. 43°14'45". Long. 70°52'46".		
Ice-contact deposits:		
Topsoil.....	1	1
Sand, coarse, white; a little silt.....	4	5
Sand, medium to coarse, a little silt.....	5	10
Sand, fine to medium; streaks of iron stain and some silt.	5	15
Sand, fine; streaks of clay...	5	20
Sand, fine, some silt.....	5	25
Sand, very fine, and silt.....	5	30
Sand, very fine, gray, silt, and clay, soft	33	63
Bedrock.....		63
SOMERSWORTH 18. X18-1. Alt. 160 ft. Lat. 43°14'37". Long. 70°52'05".		
Unconsolidated deposits, undifferentiated:		
Topsoil.....	2	2
Sand, coarse; some iron stain	5	7
Sand, coarse, and clay.....	3	10
Marine deposits:		
Clay; some sand, fine.....	10	20
Clay; a little sand, fine.....	10	30
Clay.....	12	42
Bedrock.....		42
SOMERSWORTH 19. X18-1. Alt. 203 ft. Lat. 43°14'38". Long. 70°52'26".		
Ice-contact deposits:		
Sand, fine.....	2.0	2.0
Sand, coarse, [illegible]	3.0	5.0
Sand, medium to [illegible]	5.0	10.0
Sand, fine; some [illegible]	5.0	15.0
Sand, fine to coarse, some silt.....	5.0	20.0
Sand, gray; some silt..	7.0	27.0
Till:		
Clay and rocks.....	0.5	27.5
Gravel, dark gray [illegible] broken ledge....	1.5	29.0
Gravel, hard-packed, and sand, gray; some silt.....	6.0	35.0
Bedrock.....	0.5	35 5

TOWN OF FARMINGTON, NEW HAMPSHIRE

REPORT OF
EXPLORATORY TEST WELL PROGRAM

NOVEMBER 1973

BY: LAYNE NEW ENGLAND COMPANY
15 RYDER STREET
ARLINGTON, MASSACHUSETTS



TEST WELL RECORD

Layne NEW YORK CO., INC.

DATE 9/10/73 TEST WELL NO. 2+2A-73

FOR FARMINGTON NH

LOCATION BY NEW TOWN BARN

PROPERTY OWNER TOWN.

LOG OF WELL

GROUND SURFACE 0'

TOP SOIL 1'

2½"

FINE TO MEDIUM BROWN SAND AND GRAVEL TRACES OF SILT

TOTAL WELL DEPTH

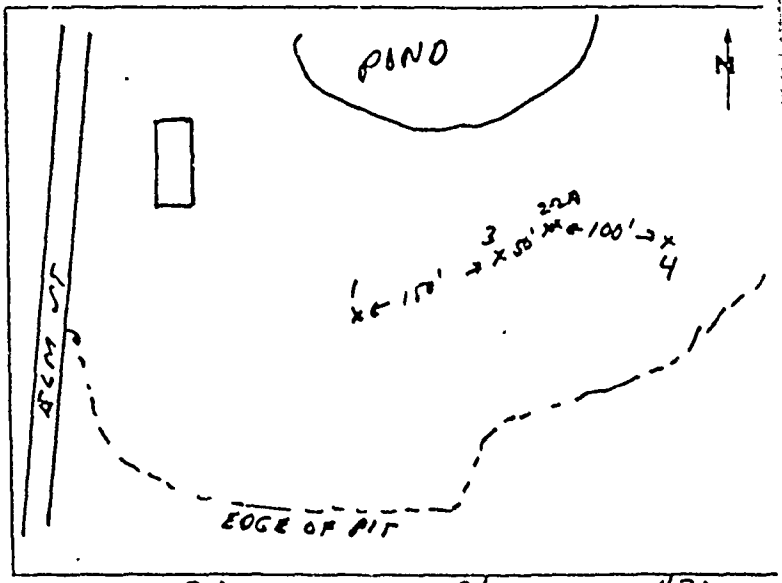
51'

47

SAND & GRAVEL MUCH SILT SNAR." GRAVEL (TIGHT)

BOTTOM OF TEST HOLE

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



OBS. WELL: NO. 2A DISTANCE 2' DEPTH 47'

NO. DISTANCE DEPTH

WELL SCREEN: TYPE WW LENGTH 5' OPENING 60

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	2A PUMP. WELL	2A OBS. WELL	OBS. WELL	TIME	GPM	2A PUMP. WELL	2 OBS. WELL	1 OBS WEL
9.39	50	START	1.15'		2:04	0	1.90	1.25	1.9
9:40		19"V.	1.85		2:05	60	15"V.	2.15	
9:42		19"V.	1.85		2:07			2.15	
9:45		19"V	1.90		2:10			2.15	1.9
10:00		20"V.	1.90		2:30			2.15	1.91
11:00	50	20"V	1.95'		3:00			2.2	1.93
11:00	0	SHUT OFF			4:00			2.25	1.97
11:01	0		1.29						
11:02	0		1.25		6:00	60	15"V	2.3	2.0
11:05	0		1.25		6:01	0		1.35	
11:10	0		1.25		6:10			1.35	1.95

STATIC LEVEL 1'0 ORIFICE AIR LINE LENGTH

QUALITY: FE HARD. IRON MANGANESE

ODOR Ok TASTE Ok. LAB. SAMPLE X

PIPE LEFT: IN WELL 43 FT., IN OBS. WELL 43 FT.

SCREEN LEFT: IN WELL 5 FT., IN OBS. WELL 5 FT.

PIPE: TO BE LEFT TO BE PULLED LATER

REMARKS

SET SCREEN AT 51'
FORMATION TIGHT
PULLED BACK TO 47'
DEVELOPED 4 HRS
PUMPED 60GPM.

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Bob Pensh.

ROCHESTER

RO-4

U.S. Geological Survey, WRD
Room 307, Federal Bldg.
Concord, New Hampshire 03301

UNITED STATES DEPARTMENT

GEOLOGICAL SURVEY

NEW HAMPSHIRE BASIC-DATA REPORT NO. 1
GROUND-WATER SERIES

SOUTHEASTERN AREA

By

EDWARD BRADLEY and RICHARD G. PETERSEN

PREPARED IN COOPERATION WITH
THE STATE OF NEW HAMPSHIRE
WATER RESOURCES BOARD

1962

Table 2.--Records of selected wells and test holes in southeastern New Hampshire--Continued

Well No.	Location	Owner or user	Year drilled	Altitude of land-surface datum (feet)	Depth (feet)	Type of well	Diameter of well (inches)	Water-bearing material: Character	Water-bearing material: Geologic unit	Water level: Depth	Water level: Date	Water level: Type of	Use	Remarks
								STRAFFORD COUNTY (Continued)						
								ROCHESTER (Continued)						
5	W19-5	Wesley Jefferson	1950	235	13.3	Dg	36	Sand	Outwash and shore deposits	9.62	10-21-53	Rcns	U	
6	W19-4	City of Rochester (Manny No. 3)	1947	225.54	84	Dr	6	Sand and gravel	Ice-contact deposits	5.98	10-21-53	Rcns	U	lb. W.
7	W19-5	William Lee	1950	305	16.5	Dg	36	-	Till	9.87	9- 9-54	Rcns	U	
8	W19-4	People's Market	1938	235	207	Dr	8	-	Bedrock	19.98	10-21-53	F	I	lb. Reported yield 10 gpm.
9	W19-4	City of Rochester (Manny No. 4)	1947	223.04	99	Dr	6	Sand and gravel	Ice-contact deposits	2.11	4-29-54	Rcns	U	lb. W.
10	W19-1	Arthur Leavitt	1950	290	35	Dr	8	Sand	Outwash and shore deposits	23	+50	J	D	lb. T 55.
11	W19-3	Ernest Cook	1900	265	23.5	Dg	36	Sand and gravel	Ice-contact deposits	18.58	7-18-54	F	D	
12	W19-4	R. H. Macleod	1949	250	12.5	Dg	24	-	Till	9.65	7-13-54	F	D	
13	W19-1	H. H. Perkins	-	265	15.0	Dg	36	Sand and gravel	Ice-contact deposits	10.57	8- 4-54	F	D	
14	W19-1	Mary Tebbets	-	248	16.0	Dg	36	do.	do.	13.30	9-16-54	Rcns	U	
15	W19-8	U. S. Geol. Survey	1954	240	9.5	Dn	1	Sand	Outwash and shore deposits	3.56	9-15-54	Rcns	O	lb 1955.
16	W19-5	Everett Cogan	1940	240	155	Dg	18	Sand and gravel	Ice-contact deposits	9.43	9-18-54	Rcns	U	
17	W19-1	Sam Liecotelli	1948	230	8.0	Dg	36	Sand	Outwash and shore deposits	3.39	9-16-54	Rcns	U	
18	W19-1	E. N. Shiven	1953	245	260	Dr	6	-	Bedrock	17	-3	F	D	lb. Reported yield 7½ gpm. Ct. T 54.
19	W19-7	Hattie Flagg	1900	210	10.0	Dg	36	Sand	Outwash and shore deposits	6.18	9-16-54	F	D	
20	W19-8	E. V. Campbell	1900	165	30	Dg	36	Very firm sand, silt, and clay	Marine deposits	4.88	9-23-54	F	D	
21	W18-1	Summer Meteor	1947	200	280	Dr	8	-	Bedrock	-	-	J	D	lb. Reported yield 10 gpm.
22	W19-4	City of Rochester (Manny No. 2)	1947	225	94.0	Dr	6	Sand and gravel	Ice-contact deposits	0.9	+50	Rcns	T	lb.
23	W19-4	City of Rochester (Manny No. 7)	1947	222.9	90.5	Dr	6	do.	do.	48.65	+47	Rcns	T	lb.
24	W19-4	City of Rochester (Manny No. 6)	1947	226.0	94	Dr	6	do.	do.	5.9	+47	Rcns	T	lb.
25	W19-4	City of Rochester (Manny No. 5)	1947	221.36	60.6	Dr	8	"	"	1.3	+47	Rcns	T	lb.
26-28	W19-7	N.H. Dept. Pub. Wks. and Hwys.	1956	173.3-196.2	84.6-126	Dn	2	"	"	"	"	Rcns	T	lb.

RYE

RY-1

1-73
2-73
3-73
4-73

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Bay Water District Test Hole #1 Nov. 73

Address

Well located at 453 Washington Road in County, State of R.I.

Date Drilling started 10-29-73 Date Test Hole Completed 10-31-73

Total depth to bottom of Well Refusal below Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

DEPTH OF STRATA	FORMATION FOUND IN EACH STRATUM
	1 Hole Refusal at 7'
	1A Hole Refusal at 10'
	B Hole Refusal at 13'
	2 Hole Refusal at 12'
	2A Hole Refusal at 15'
	3 Hole Refusal at 18'
	2 Hole Refusal at 15'
	2A Hole Refusal at 18'
	3 Hole Refusal at 18'
	4 Hole Refusal at 18'
	Lot of rocks and boulders
	25' Between 1st and 2nd

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

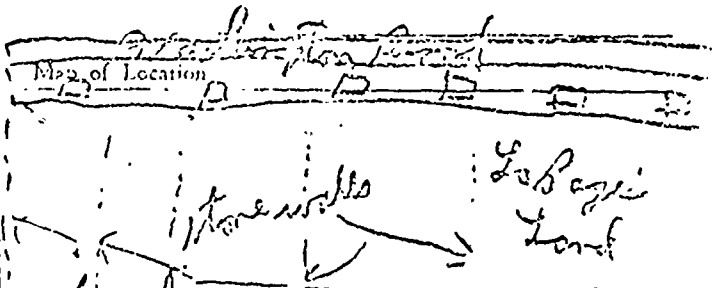
Time Required for Recovery?

Was Well Pulled? Yes

Observation Hole What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test Boring 3 drilled trying to get down. Water encountered

Driller Charles MacKay

Helpers R. Brown

(1)

6-73

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Bay Water District Permit No. Nov-73

Address

Well located at 11 Longs Road n County, State of R.I.

Date Drilling started 11-2-73 Date Test Hole Completed 11-2-73

Total depth to bottom of Well Not Known Diameter Test Hole 2 1/2"

Water stands when not pumping feet inches from the surface of the ground.

SKETCH FLOW	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
6		Lake Bottom at 5'
6A		Lake Bottom at 5'
6B		Lake Bottom at 5'
6C		Lake Bottom at 5'
6D		Lake Bottom at 5'
6E		Lake Bottom at 5'
6F		Lake Bottom at 5'
		Known 5' Depth

Did Well Clear Up? Did not flush

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

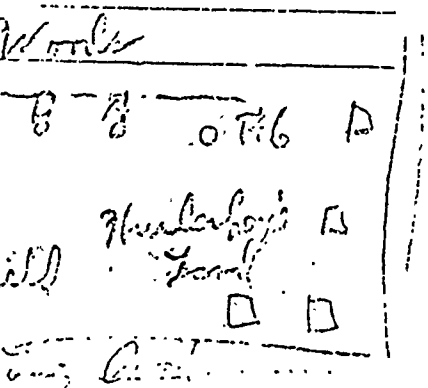
Time Required for Recovery?

Was Well Pulled? Yes

Observation Well? What Depth?

Was Observation Well Pulled?

Map of Location Wells



Remarks and opinion of Test Very satisfactory

Driller Charles Mackey

Helpers R. Dumas

7-73

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Bay Water District Test No. #4 Site

Address

Well located at 66 Long Road in County, State of Ct.

Date Drilling started 11-2-73 Date Test Hole Completed 11-5-73

Total depth to bottom of Well not taken Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#7 hole		Refusal at 18'
#7A hole		Refusal at 28'
0'	7'	Sand
7'	28'	Fine gray sand with a little clay refusal at 28'
		Stone 1'

Did Well Cave Up? Did not flow

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

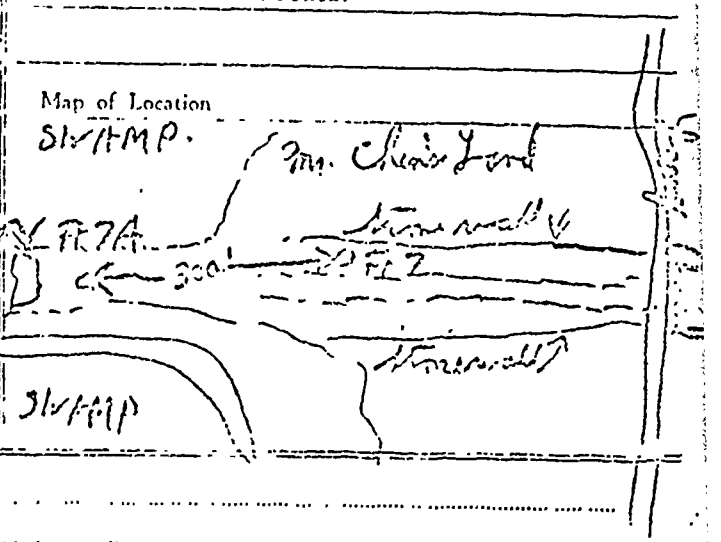
Time Required for Recovery?

Was Well Pulled? Yes

Observation Well? What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller Charles Mackey

Helpers

R. Gibbons

M. Gibbons

12-74
"6"

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Dixfield Water District Test No. 12-74

Address

Well located at Dr Town Dump in County, State of Me.

Date Drilling started 9-3-74 Date Test Hole Completed 9-4-74

Total depth to bottom of Well 35' Diameter Test Hole 2½"

Water stands when not pumping 8' feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
35'	35'	Fine brown sand with broken gravel and clay.
Set screen at 33' but fine sand plugged up well.		
Reset screen at 26'		
Fair on screen has enough to make		
OR State water sample.		

Did Well Clear Up? Yes

How Long? 15 minutes

Time Pumped? 4 hours

Drawdown Ft. In.

Capacity 10 G.P.M. 9 oz. 27"

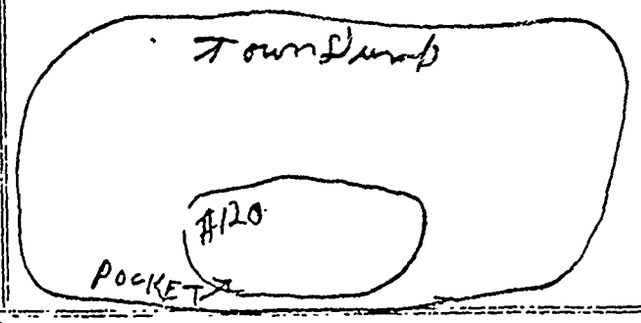
Time Required for Recovery?

Was Well Pulled? Yes - Back to 26'

Observation? None What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helpers G. Bruno

S. Kelley

15-74
"F"

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Bye Water District Test No. 15-74

Address

Well located at Dumps Road in County, State of Wash.

Date Drilling started 9-12-74 Date Test Hole Completed 9-13-74

Total depth to bottom of Well 28' Diameter Test Hole 2½"

Water stands when not pumping 4' feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
28'	28'	Brn brown sand some gravel and clay.
		Set #40 slot screen at 28' Set well light
		Didn't screen at 21' as first screen only 3'
		Screen has sand in it.
		Left well in for future use.

Did Well Clear Up? Yes

How Long? 1 hour

Time Pumped? 3 hours

Drawdown Ft. In.

Capacity 10 G.P.M. on 22"

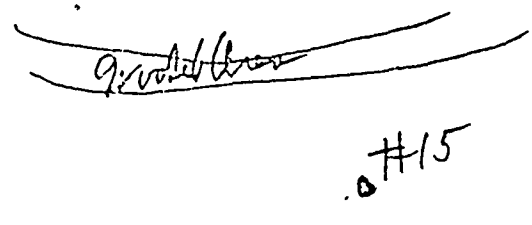
Time Required for Recovery?

Was Well Pulled? Yes Back to 21'

Observation? None What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helpers S. Kelly

RECEIVED
DEC 1 3 1974
D. L. MAHER CO.

TO	RECEIVED	DATE
E.J.M.		
J.T.M.	JTM	12/23
D.L.M.		
W.B.		
E.J.K		

REPORT TO
THE BOARD OF WATER COMMISSIONERS
OF THE
RYE WATER DISTRICT
ON
TEST WELL INVESTIGATIONS
IN
RYE, NEW HAMPSHIRE

COFFIN & RICHARDSON
141 Milk Street, Boston, Mass. 02109 • Phone (617) 482-3440

8-73
9-73

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Raje Water District Tenneco Site

Address

Well located at 410 Lagoon Road in ..... County, State of N.J.

Date Drilling started 11-5-73 Date Test Hole Completed 11-5-73

Total depth to bottom of Well Not Below Diameter Test Hole 2½"

Water stands when not pumping ..... feet ..... inches from the surface of the ground.

NUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
1		Sand Boring at 5'
2		Sand Boring at 5'
3		Sand Boring at 5'
4		Sand Boring at 5'
		could not get down all boulders and ledge

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

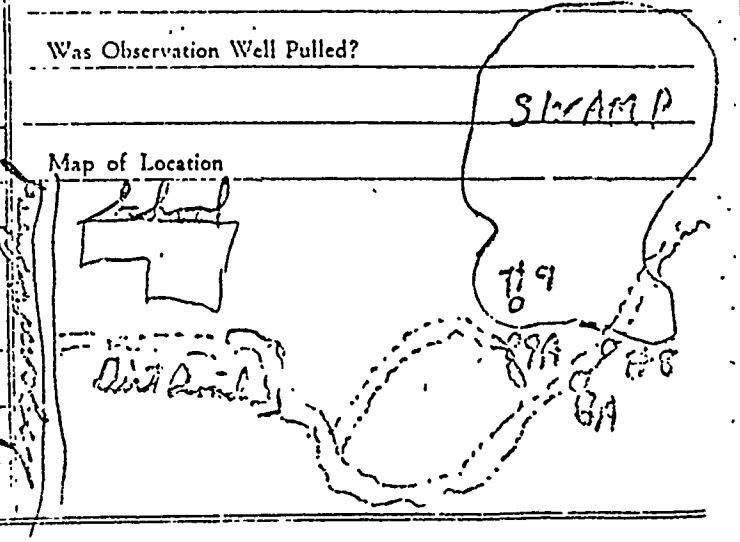
Time Required for Recovery?

Was Well Pulled? yes

Observation Well? What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller Charles Mowbray

Helpers B. Brown

4-74
Sec "A & B"
1809 Pm / 5th Addition

D. L. MAHER CO.
LOG OF TEST WELL

Log of Well for Rye Water District Test No. 4-4 obs. 74

Address

Well located at off Garland Road in County, State of N. H.

Date Drilling started 8-15-74 Date Test Hole Completed 8-19-74

Total depth to bottom of Well 49'-6" Diameter Test Hole 2½"

Water stands when not pumping 4' feet inches from the surface of the ground.

ACH ATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
5'	35'	fine brown sand with broken gravel and clay.
	49'	fine brown sand with large broken gravel and traces of clay.
		#4 obs slot screen in test well at 49'
		#4 obs slot screen in test well at 49'
		screen screens have inside threads
		water sample
-10		loam and sand
		approx. 200' between wells #1-2-4

Did Well Clear Up? Yes

How Long? 10 minutes

Time Pumped? 4 hours

Drawdown Ft. 2" In.

Capacity 30 G.P.M. no. 8"

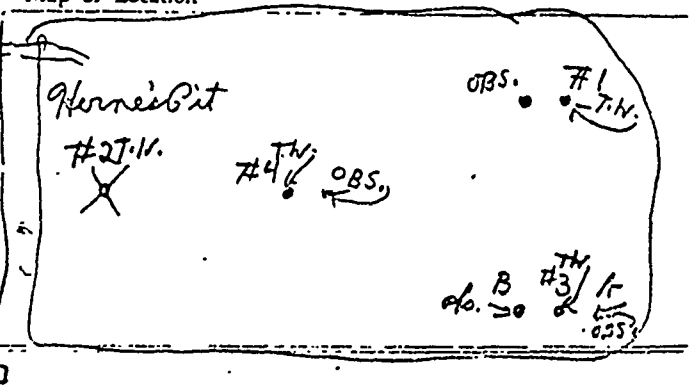
Time Required for Recovery? 1 minutes

Was Well Pulled? No

Observation Yes What Depth? 49'

Was Observation Well Pulled? No

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helpers S. Willis

5-74

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Dyer Water District Test No. 5-74

Address

Well located at 1 Washington Road in County, State of N.J.

Date Drilling started 8-16-74 Date Test Hole Completed 8-19-74

Total depth to bottom of Well 57' Diameter Test Hole 2½"

Water stands when not pumping 31' feet 6" inches from the surface of the ground.

STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
	42'	Fine brown sand with broken gravel and clay.
	56'	Fine gray sand with sharp gravel and clay
		Refusal at 57'

Did Well Clear Up? Didn't pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

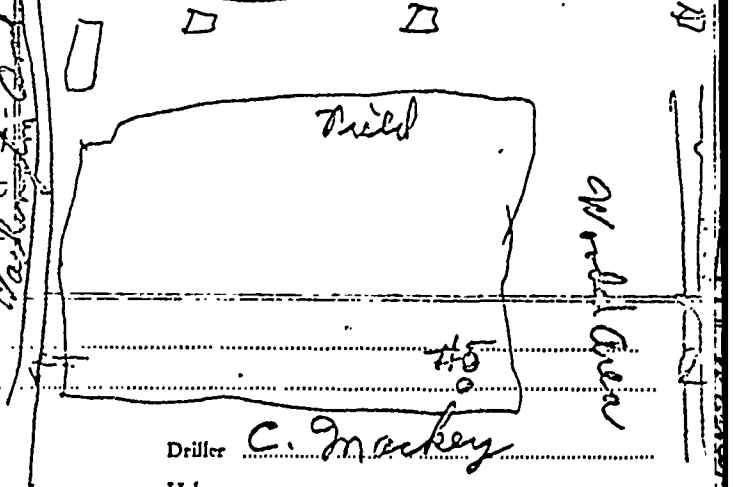
Time Required for Recovery?

Was Well Pulled? Yes

Observation? None What Depth?

Was Observation Well Pulled?

Map of Location Plan 1



Remarks and opinion of Test

Driller C. Mackey

Helpers

D. O'Kelly

6-74

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye Water District Test No. 6-6A-6B-6C-6

Address

Well located Dist. 1 on Washington Rd. in County, State of Wash.

Date Drilling started 8-19-74 Date Test Hole Completed 8-19-74

Total depth to bottom of Well Noted below Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#6 hole	6'	Refusal
6A hole	7'	Refusal
6B hole	7'	Refusal
6C hole	8'	Refusal
6D hole	12'	Refusal

Did Well Clear Up? Did not flow

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

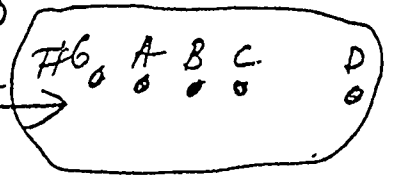
Time Required for Recovery?

Was Well Pulled? yes

Observation None What Depth?

Was Observation Well Pulled?

Map of Location



Die. 17

Remarks and opinion of Test Although fractured

Driller C. Mackey

Helpers S. Wells

15

W. Washington 6

7-74

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye Water District Test No. 7-74

Address

Well located at Hernes Bit in County, State of Wash.

Date Drilling started 8-20-74 Date Test Hole Completed 8-26-74

Total depth to bottom of Well 49' Diameter Test Hole 2½"

Water stands when not pumping 6' feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
35'	35'	Fine brown sand with gravel and clay.
14'	49'	Fine brown sand with black gravel and clay.
Set screen at 49' and 42' Well tight		
Set screen at 35' Pulled in 5 feet through screen		

Did Well Clear Up? Would not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

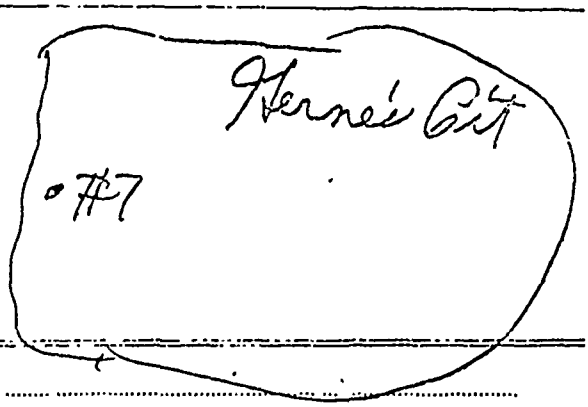
Time Required for Recovery?

Was Well Pulled? yes

Observation Well What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helpers S. Wells

8-74

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye Water District Test No. 8-8A-74

Address

Well located at Land of Mr. Rogers Land in County, State of N.H.

Date Drilling started 8-22-74 Date Test Hole Completed 8-22-74

Total depth to bottom of Well 29' Diameter Test Hole 2½"

Water stands when not pumping 4' feet inches from the surface of the ground.

ACH ATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
8'	28'	#8 hole Top soil 2' then fine brown sand with some gravel and brown clay
		Refusal at 29'
#8A hole		same as #8 hole only
1' shallower		

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

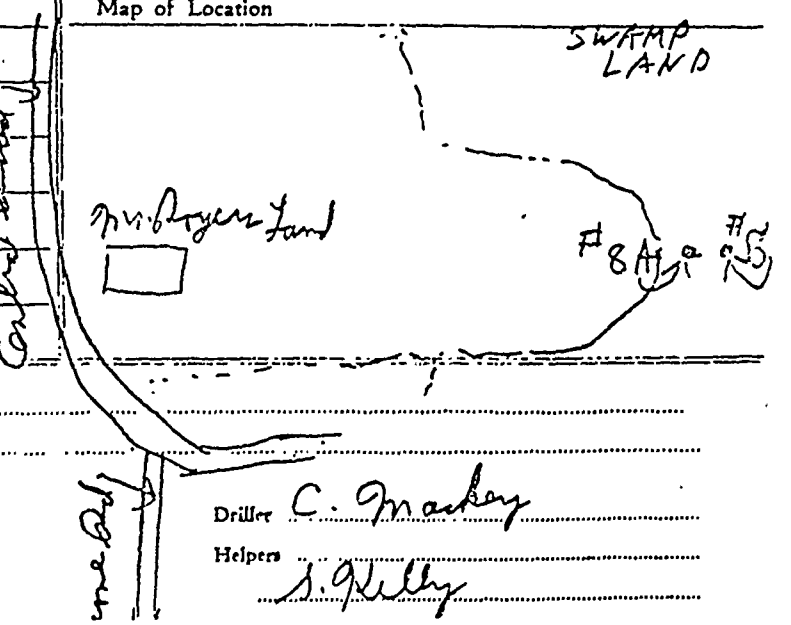
Time Required for Recovery?

Was Well Pulled? Yes

Observation? None What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helpers S. Kelly

9-7

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Dye Water District Test No. 9-9A-74

Address

Well located at off Grove Road in County, State of Wa. Co.

Date Drilling started 8-22-74 Date Test Hole Completed 8-22-74

Total depth to bottom of Well 24' Diameter Test Hole 2½"

Water stands when not pumping 4' feet inches from the surface of the groun

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#9 Test hole		Bouncy at 24'
#9A Test hole		Bouncy at 24'

Did Well Clear Up? Didn't pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

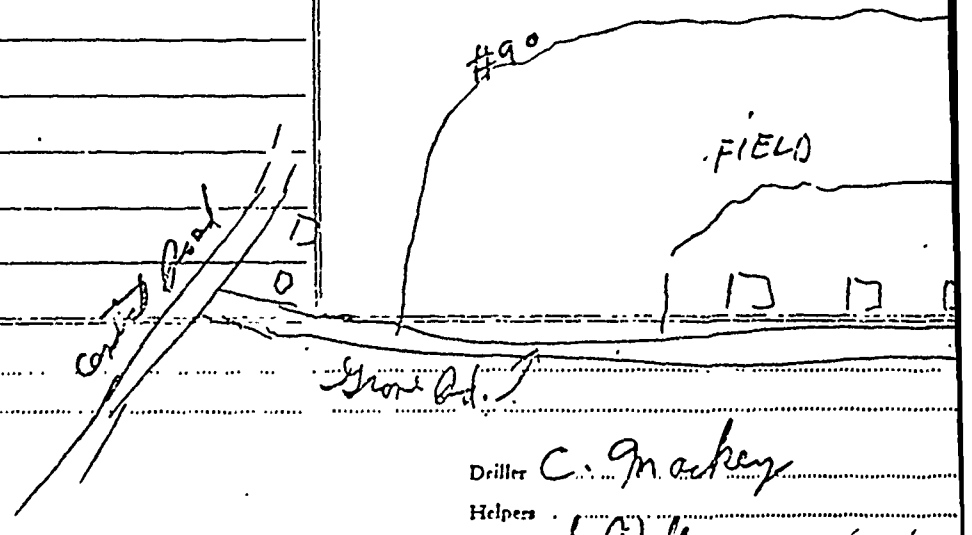
Time Required for Recovery?

Was Well Pulled? yes

Observation Bore What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helpers S. Wilson

10-74

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye Water District Test No 10-10A-10B-74

Address

Well located at off Garland Rd. in County, State of N.H.

Date Drilling started 8-26-72 Date Test Hole Completed 8-26-72

Total depth to bottom of Well Not below Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#10 Test Hole		
1		Bouncy at 10'
10A Test Hole		
		Bouncy at 12'
10B Test Hole		
		Bouncy at 13'
		Sand & Gravel
		Sand & Silt

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

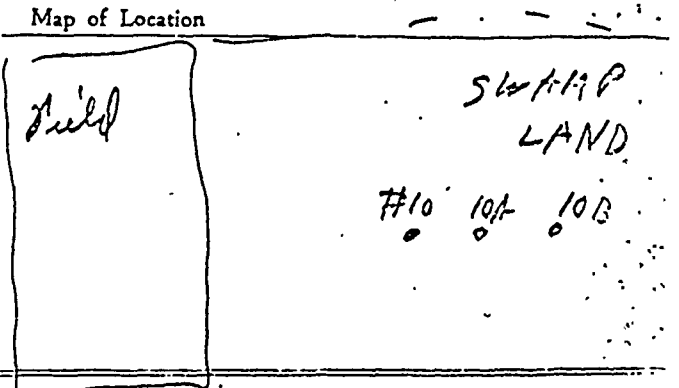
Time Required for Recovery?

Was Well Pulled? Yes

Observation Well What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helpers

11-74

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye Water District Test No. 11-11A-11B-74

Address

Well located at 660 Washington Road in County, State of N.H.

Date Drilling started 8-26-74 Date Test Hole Completed 8-26-74

Total depth to bottom of Well Artes. below Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
11 Test hole		
		Bouncy at 14'
A Test hole		
		Bouncy at 12'
B Test hole		
		Bouncy at 19'

Did Well Clear Up? Did not pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

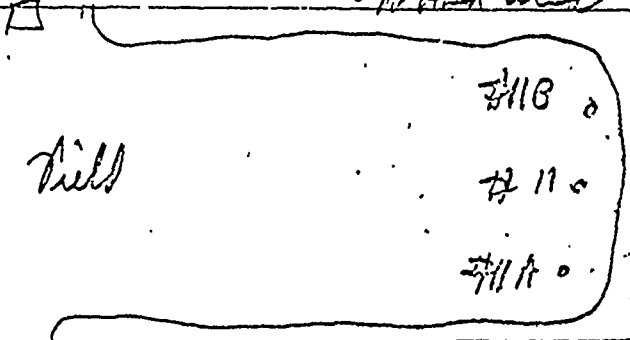
Time Required for Recovery?

Was Well Pulled? yes

Observation None What Depth?

Was Obsetvation Well Pulled:

Map of Location Marsh Area



Remarks and opinion of Test

Driller C. Mackey

Helpers S. Kelley

17-7½

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Bye Water District Test No. 17-17A

Address

Well located at Off Central St. in ... County, State of Wash.

Date Drilling started 9-16-74 Date Test Hole Completed 9-16-74

Total depth to bottom of Well 17' and 16' Diameter Test Hole 2-½"

Water stands when not pumping ... feet ... inches from the surface of the ground.

CH ATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
17 Test Hole		
		0' to 5' Peat
		5' to 17' Gray clay
		Refusal at 17'
17A Test Hole		
		0' to 5' Peat
		5' to 16' Gray clay
		Refusal at 16'

Did Well Clear Up? Did not flow

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

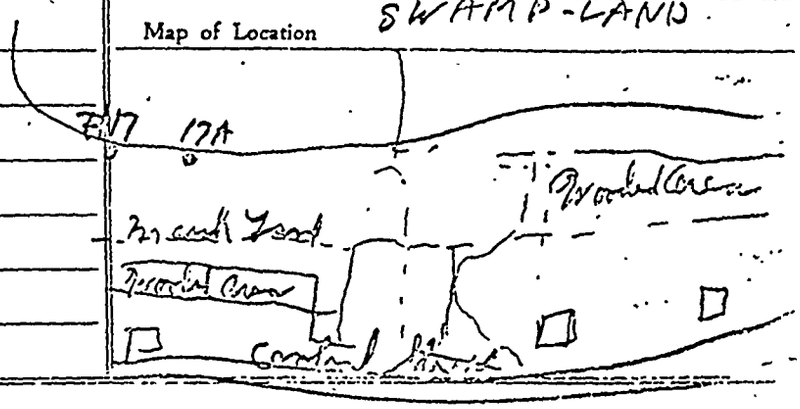
Time Required for Recovery?

Was Well Pulled? Yes

Observation Well? None What Depth?

Was Observation Well Pulled?

Map of Location



marks and opinion of Test

Driller C. Mahey

Helpers S. Keller

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Town of Ogden Water District Test No 20 20A 20B

Address

Well located at Off Garland Road in County, State of N.Y.

Date Drilling started 10-10-74 Date Test Hole Completed 10-10-74

Total depth to bottom of Well Noted below Diameter Test Hole 2½"

Water stands when not pumping 3' feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#20 Hole		Refused at 17'
#20A Hole		Refused at 18'
#20B Hole		Refused at 15'
20A Hole		Static 3'
		0' to 4' Loam
		4' to 18' Sand from sandpoints
		ground and clay.

Did Well Clear Up? Didn't pump

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

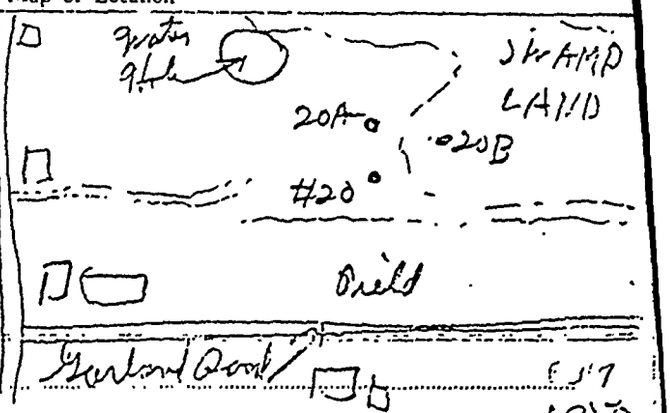
Time Required for Recovery?

Was Well Pulled? Yes

Observation One What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller C. Mackey

Helper

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye N.H. Test No. 79-46

Address

Well located at Garland Rd in Rye County, State of N.H.

Date Drilling started 7-16-79 Date Test Hole Completed 7-16-79

Total depth to bottom of Well 41' Diameter Test Hole 2½"

Water stands when not pumping - 8' feet 0" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	21'	Fine Sand & Grey Clay & Silt.
21'	28'	Grey Clay & Silt
28'	35'	Grey Clay & Silt
35'	40'	Grey Clay & Silt with Pieces of Gravel
	41'	Refuseal
		Pulled well out

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

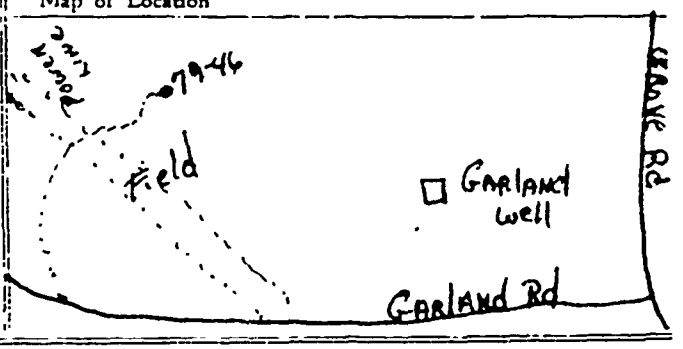
Time Required for Recovery?

Was Well Pulled? Yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller T. Pelczar

Helpers B. Dubois

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye N.H. Test No. 79-43

Address

Well located at Washington Rd in Rye County, State of N.H.

Date Drilling started 7-12-79 Date Test Hole Completed 7-12-79

Total depth to bottom of Well 20' Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	19'	HARD Compact Sand & Clay
	20'	Ledge
		Pulled Pipe out. Bent one piece of 2½" Pipe

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

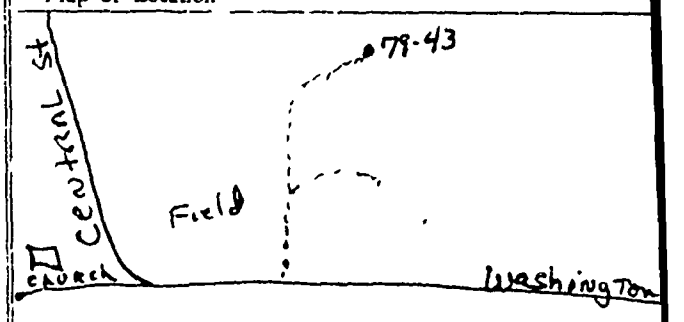
Time Required for Recovery?

Was Well Pulled? Yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller T. Pelczak

Helpers B. Dubois

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye N.H Test No. 79-41

Address

Well located at Central St in Rye County, State of N.H.

Date Drilling started 7-12-79 Date Test Hole Completed 7-12-79

Total depth to bottom of Well 14' Diameter Test Hole

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	13'	Stones, Rocks +
		med Sand.
	14'	Refusal
		Pulled Pipe out

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

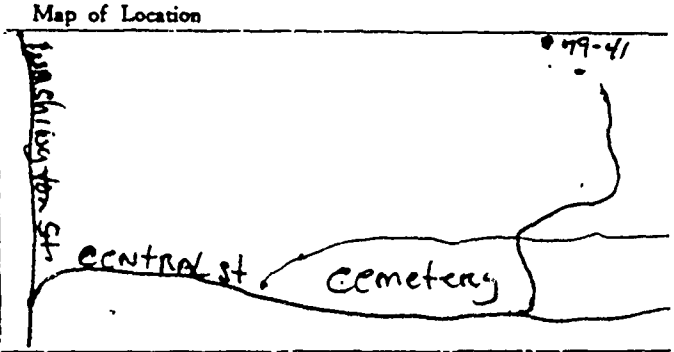
Time Required for Recovery?

Was Well Pulled? Yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller T. Pelczar

Helpers B. Dubois

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye N.H Test No. 79-40

Address

Well located at CENTRAL St in Rye County, State of N.H

Date Drilling started 7-12-79 Date Test Hole Completed 7-12-79

Total depth to bottom of Well 16' Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	15'	Rocks Stones + med Sand.
	16'	Refusal
		Pulled Pipe out

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

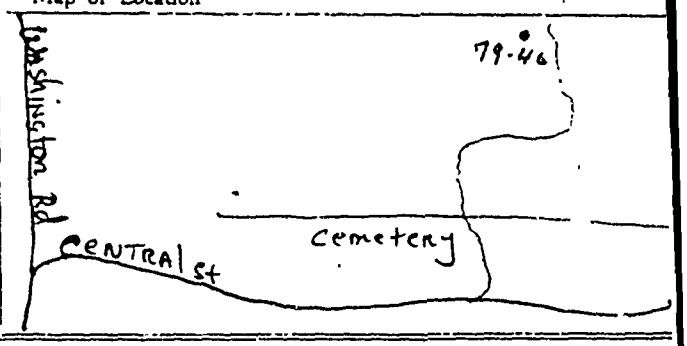
Time Required for Recovery?

Was Well Pulled? Yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller T. Pelczar

Helpers B. DuBois

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye N.H. Test No. 79-39

Address

Well located at Central St in Rye County, State of N.H.

Date Drilling started 7-11-79 Date Test Hole Completed 7-11-79

Total depth to bottom of Well 18' Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	17'	Fine SAND & Clay
	18'	Refused
		Pulled pipe out

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In

Capacity

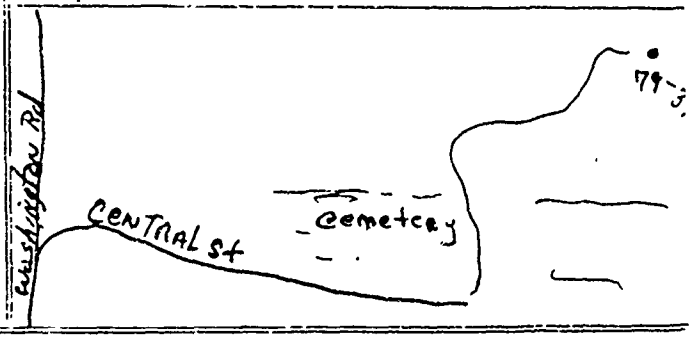
Time Required for Recovery?

Was Well Pulled? Yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller T. Pelczar

Helpers B. Dubois

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Rye N.H. Test No. 79-38

Address

Well located at Garland Rd in Rye County, State of N. H.

Date Drilling started 7-11-79 Date Test Hole Completed 7-11-79

Total depth to bottom of Well 52' Diameter Test Hole 2½"

Water stands when not pumping 7' feet 10" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	14'	med SAND & Gravel
14'	21'	Clay & Sharp Gravel
21'	28'	Grey Clay
28'	35'	Grey Clay
35'	42'	Grey Clay & Silt
42'	49'	Grey Clay & Silt
49'	51'	Sharp med Gravel
	52'	Refusal
		Pulled Pipe out

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

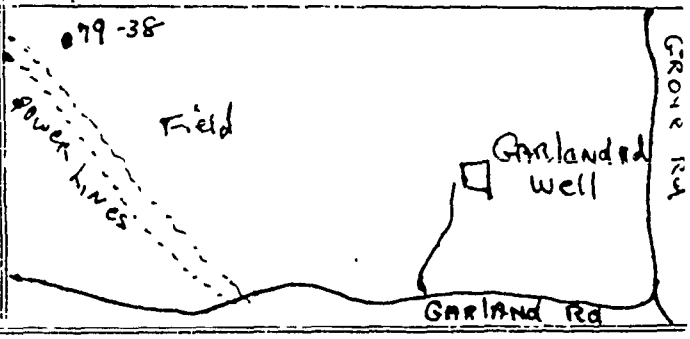
Time Required for Recovery?

Was Well Pulled? Yes

Observation No What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller T. Pelczar

Helpers B. Dubois

SOMERSWORTH

SO-1

TEST WELL RECORD

Layne NEW YORK CO., INC.

4-8

DATE 7-15-63 TEST WELL NO. 8 + 9A

FOR Somersworth N.H.

LOCATION Lily Pond or Cole's Pond

PROPERTY OWNER

LOG OF WELL

GROUND SURFACE 0'

well 8

0'-[illegible]' Fine brown sand with [illegible] coarse sand, trace gravel, [illegible]

TOTAL WELL DEPTH 26'

BOTTOM OF TEST HOLE

REMARKS

Well 7 [illegible] pipe. 22' above

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

N

See Map

OBS. WELL: NO. _____ DISTANCE _____ DEPTH _____

NO. _____ DISTANCE _____ DEPTH _____

WELL SCREEN: TYPE _____ LENGTH _____ OPENING _____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION: _____

TIME	GPM	PUMP WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS WEL

STATIC LEVEL 4' ORIFICE _____ AIR LINE LENGTH _____

QUALITY: PH _____ HARD. _____ IRON _____ MANGANESE _____

ODOR _____ TASTE _____ LAB. SAMPLE _____

PIPE LEFT: IN WELL none FT., IN OBS. WELL _____ FT.

SCREEN LEFT: IN WELL _____ FT., IN OBS. WELL _____ FT.

PIPE: TO BE LEFT _____ TO BE PULLED LATER _____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

R. Penalis

TEST WELL RECORD

Layne NEW YORK CO., INC

4-10

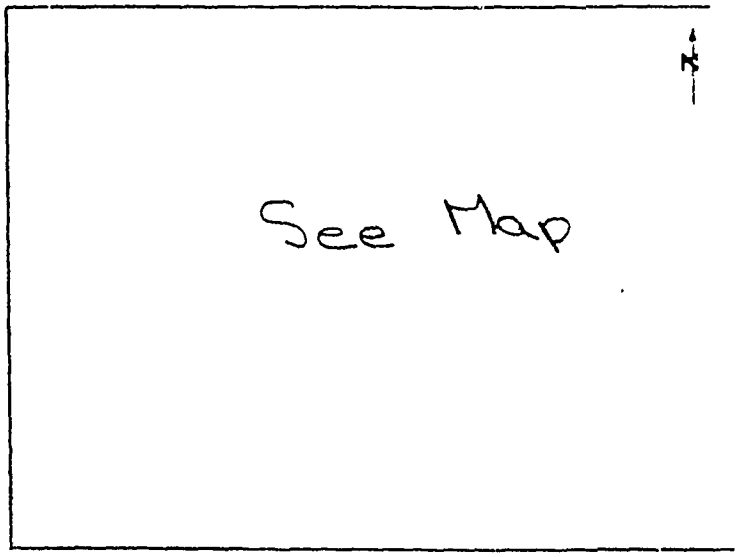
DATE 7-15-67 TEST WELL NO. 10+A+B

FOR Somersworth N.H.

LOCATION Lily Pond or Cole's Pond

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

Well 10#

14'

Fine gravel and boulders

TOTAL WELL DEPTH

14'

BOTTOM OF TEST HOLE

REMARKS

Well 10A# 2' to ... boulders

Well ... 11# boulders

OBS. WELL: NO. _____ DISTANCE _____ DEPTH _____

NO. _____ DISTANCE _____ DEPTH _____

WELL SCREEN: TYPE _____ LENGTH _____ OPENING _____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION: _____

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS WELL

STATIC LEVEL none ORIFICE _____ AIR LINE LENGTH _____

QUALITY: PH _____ HARD. _____ IRON _____ MANGANESE _____

ODOR _____ TASTE _____ LAB. SAMPLE _____

PIPE LEFT: IN WELL _____ FT., IN OBS. WELL _____ FT.

SCREEN LEFT: IN WELL none FT., IN OBS. WELL _____ FT.

PIPE: TO BE LEFT _____ TO BE PULLED LATER _____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM

SOMERSWORTH

SO-2

TEST WELL RECORD

LAYNE NEW YORK CO., INC

DATE 7-19-68 TEST WELL NO. 4-14 14+14

FOR Summerworth

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

#14
8'6
Hardpan

TOTAL WELL DEPTH 8'6"

BOTTOM OF TEST HOLE

REMARKS

#14a
6'4"

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL

STATIC LEVEL none ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB SAMPLE

PIPE LEFT: IN WELL none FT., IN OBS. WELL

SCREEN LEFT: IN WELL FT., IN OBS. WELL

PIPE: TO BE LEFT TO BE PULLED

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Lawrence F. D.

FOR LAYNE - NEW YORK CO., INC

TEST WELL RECORD

Layne NEW YORK CO., INC.

DATE 7-13-62 TEST WELL NO. 4-15 15-17-9-17

FOR

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

Well #15

Fill

Clay + Hardpan

TOTAL WELL DEPTH 14'

BOTTOM OF TEST HOLE

REMARKS

15 ft Drilled

Terminal

10' from N.

12' 12' Refusal

500' from N.

Log

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS WEL

STATIC LEVEL 4' ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL None FT., IN OBS. WELL F

SCREEN LEFT: IN WELL FT., IN OBS. WELL F

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

R. Penalis

TEST WELL RECORD

Layne NEW YORK CO.
4-28

DATE _____ TEST WELL NO. 2

FOR _____

LOCATION _____

PROPERTY OWNER _____

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

Clay

Fine Rock

2½"

TOTAL WELL DEPTH

16'8"

1'8" BOTTOM OF TEST HOLE

REMARKS

OBS. WELL: NO. _____ DISTANCE _____ DEPTH _____

NO. _____ DISTANCE _____ DEPTH _____

WELL SCREEN: TYPE _____ LENGTH _____ OPENING _____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION: _____

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	

STATIC LEVEL _____ ORIFICE _____ AIR LINE LENGTH _____

QUALITY: PH _____ HARD. _____ IRON _____ MANGANESE _____

ODOR _____ TASTE _____ LAB. SAMPLE _____

PIPE LEFT: IN WELL none FT., IN OBS. WELL _____ FT.

SCREEN LEFT: IN WELL none FT., IN OBS. WELL _____ FT.

PIPE: TO BE LEFT _____ TO BE PULLED LATER _____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Lawrence E. Plath
FOR LAYNE - NEW YORK CO., INC.

SOMERSWORTH

SO-3

TEST WELL RECORD

APPENDIX #4

DATE _____ TEST WELL NO. 1-A

FOR _____

LOCATION _____

PROPERTY OWNER _____

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

Topsoil

[illegible] Lobster's
[illegible] hard-pan
[illegible] sand
[illegible] and
[illegible] clayey
[illegible] clay
[illegible] 17'

TOTAL WELL DEPTH 18'

18' BOTTOM OF TEST HOLE

REMARKS

Well 1-A??
10' move
Check Hole
18' depth.

OBS. WELL: NO. _____ DISTANCE _____ DEPTH _____

NO. _____ DISTANCE _____ DEPTH _____

WELL SCREEN: TYPE _____ LENGTH _____ OPENING _____

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION: _____

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL

STATIC LEVEL _____ ORIFICE _____ AIR LINE LENGTH

QUALITY: PH _____ HARD. _____ IRON _____ MANGANESE

ODOR _____ TASTE _____ LAB. SAMPLE _____

PIPE LEFT: IN WELL none FT., IN OBS. WELL _____

SCREEN LEFT: IN WELL _____ FT., IN OBS. WELL _____

PIPE: TO BE LEFT _____ TO BE PULLED LATER _____

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

R. Penalis

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC

DATE 7-11-68 TEST WELL NO. 4-4 4

FOR Town

LOCATION Somersworth N.H. 46-68

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

LOG OF WELL

GROUND SURFACE 0'

F-M-H

F-M-H

TOTAL WELL DEPTH

52'

BOTTOM OF TEST HOLE

REMARKS

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL none FT., IN OBS. WELL

SCREEN LEFT: IN WELL none FT., IN OBS. WELL

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Lawrence E. Platt

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

Layne NEW YORK CO., INC.

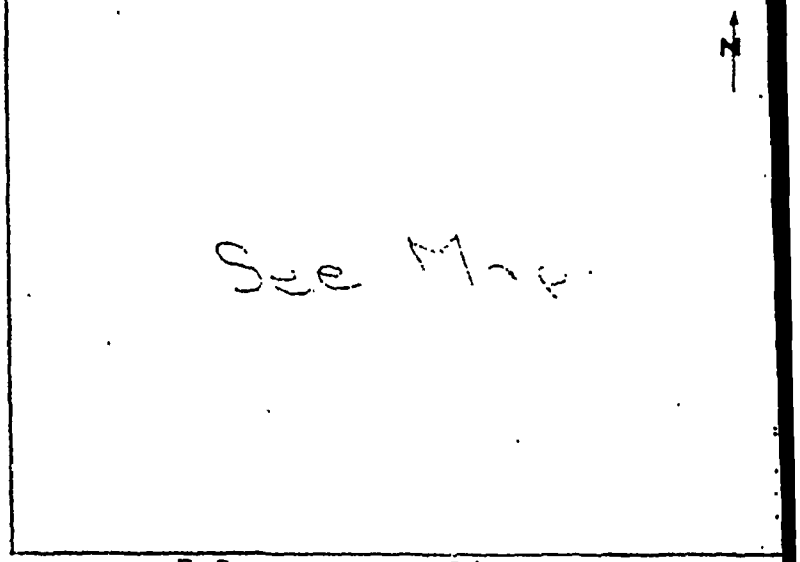
DATE 7-12-[illegible] TEST WELL NO. 4-5 5-50

FOR Town

LOCATION [illegible] N.H. [illegible]

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES



LOG OF WELL

GROUND SURFACE 0'

Peat

10'

Fine Gray Sand and Silt

25"

Fine Brown Sand with Silt

35'

Red med. to heavy Sand + Gravel

45'2" BOTTOM OF TEST HOLE

TOTAL WELL DEPTH 45'2"

REMARKS

OBS. WELL: NO. 5D DISTANCE 2' DEPTH [illegible]

NO. DISTANCE DEPTH

WELL SCREEN: TYPE I GTH 5' OPENING [illegible]

PUMPING DATA (MEASURED FROM T[illegible] OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL
[illegible]	50	-5"			[illegible]	[illegible]	7'5"		
[illegible]	50	[illegible]							
[illegible]	50	[illegible]							
[illegible]	50	[illegible]							
[illegible]	50	[illegible]							
[illegible]	50	[illegible]							
[illegible]	50	[illegible]							
[illegible]	50	[illegible]							
[illegible]	50	[illegible]							
[illegible]	50	[illegible]							

STATIC LEVEL 4'8" ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE Yes

PIPE LEFT: IN WELL 40' FT., IN OBS. WELL 44'10" FT.

SCREEN LEFT: IN WELL 5' FT., IN OBS. WELL None FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Lawrence E. Clark

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

Layne NEW YORK CO.

4-7

DATE 7-10-51 TEST WELL NO. 7x

FOR [illegible]

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

[illegible] sand + gravel + silt

TOTAL WELL DEPTH 17' 0"

BOTTOM OF TEST HOLE

REMARKS

[illegible] 7 ft.

Moved 10'

Depth 17'

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OB WE

STATIC LEVEL none ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL none FT., IN OBS. WELL

SCREEN LEFT: IN WELL none FT., IN OBS. WELL

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Insurance Plat

TEST WELL RECORD

Layne NEW YORK CO., INC

DATE 7/25/61 TEST WELL NO. 4-22

FOR Somers, South N.H.

LOCATION Gravel Pit

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

Top soil

Gravel, sand

clay with

clay

TOTAL WELL DEPTH

BOTTOM OF TEST HOLE

REMARKS

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OB WE

STATIC LEVEL Ca' ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL none FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

h Peralis

TEST WELL RECORD

Layne NEW YORK CO

4-27

DATE 7-20-68 TEST WELL NO. 27

FOR Somersworth N.H.

LOCATION

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

Well 27#
19' depth
hardpan
and boulders
Hit boulders,
bent pipe.

TOTAL WELL DEPTH

19'

19'

BOTTOM OF TEST HOLE

REMARKS

Well #27A
17' depth
Boulders

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL

STATIC LEVEL none ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL none FT., IN OBS. WELL

SCREEN LEFT: IN WELL FT., IN OBS. WELL

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

R. Penalis

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

LAYNE NEW YORK CO., INC.

4-30

DATE 8-11-68 TEST WELL NO. 30+203

FOR Sumersworth N.H.

LOCATION Back at race track

PROPERTY OWNER

SKETCH OF LOCATION . GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

Topsoil

Gravelly Hardpan

TOTAL WELL DEPTH 14'9"

BOTTOM OF TEST HOLE

REMARKS

Well #30+203

Wound 10'

Refusal 14'9"

OBS. WELL: NO. DISTANCE DEPTH

NO. DISTANCE DEPTH

WELL SCREEN: TYPE LENGTH OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL

STATIC LEVEL ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL none FT., IN OBS. WELL FT.

SCREEN LEFT: IN WELL none FT., IN OBS. WELL FT.

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Lawrence E. Tatt

FOR LAYNE - NEW YORK CO., INC.

TEST WELL RECORD

Layne NEW YORK CO.
4-33

DATE 7-11-68 TEST WELL NO. 2

FOR Dunnessiworth

LOCATION Blackwater Rd.

PROPERTY OWNER

SKETCH OF LOCATION GIVE APPROXIMATE DISTANCES

See Map

LOG OF WELL

GROUND SURFACE 0'

Peat

11'

Fine to Med. Sand and gravel lots of silt to 38' but not so much from 38' to 44'.

TOTAL WELL DEPTH 44'10"

Hard pan

44'10" BOTTOM OF TEST HOLE

REMARKS

OBS. WELL: NO. 1 DISTANCE 21' DEPTH 37

NO. DISTANCE DEPTH

WELL SCREEN: TYPE 60 slot LENGTH 5' OPENING

PUMPING DATA (MEASURED FROM TOP OF PIPE) ELEVATION:

TIME	GPM	PUMP. WELL	OBS. WELL	OBS. WELL	TIME	GPM	PUMP. WELL	OBS WEL
12:00		2' 1"			1:30	40	2'9"	
12:05	40	2'8"			2:00	"	2'9"	
12:10	"	2'8½"			2:30	40	2'9"	
12:15	40	2'8½"			3:00	"	2'9"	
12:20	"	2'8½"			Recovery			
12:25	40	2'8½"			3:01	Complete Rec		
12:30	"	2'9"						
12:45	40	2'9"						
1:00	"	2'9"						
1:15	40	2'9"						

STATIC LEVEL 2' 1" from top ORIFICE AIR LINE LENGTH

QUALITY: PH HARD. IRON MANGANESE

ODOR TASTE LAB. SAMPLE

PIPE LEFT: IN WELL 32' FT., IN OBS. WELL 32.1

SCREEN LEFT: IN WELL 5' FT., IN OBS. WELL 5'

PIPE: TO BE LEFT TO BE PULLED LATER

NOTE (1) SHOW SCREEN SETTING ON SKETCH.
(2) TAKE ALL MEASUREMENTS FROM GROUND LEVEL.

Laurence E. Platte Jr.
FOR LAYNE - NEW YORK CO., INC.

STRATHAM

ST-1

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for ... Portsmouth N.H. ... Test No. #12-77

Address OFF BUNKER HILL RD.

Well located at IN STRATHAM N.H. IN BELL & FLYNNS PIT ... County, State of N.H.

Date Drilling started 5-26-77 ... Date Test Hole Completed 5-26-77

Total depth to bottom of Well ... 24' ... Diameter Test Hole 2½"

Water stands when not pumping ... feet ... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	grayish brown sand and clay.
	24'	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

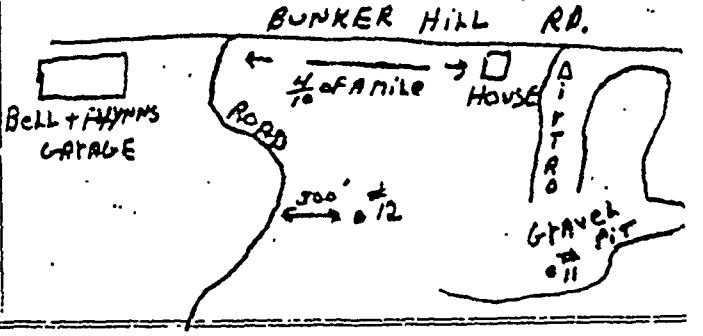
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A Graglia

Helper E. Balazar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #13-77

Address GRAVEL PIT OF BUNKER HILL AVE.

Well located at INSTATHAM N.H. BELL & FLYNN'S PIT County, State of N.H.

Date Drilling started 5-31-77 Date Test Hole Completed 5-31-77

Total depth to bottom of Well 18' Diameter Test Hole 2½"

Water stands when not pumping ..... feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	14'	fine brown sand and clay.
14'	17'	hard pan.
	18'	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

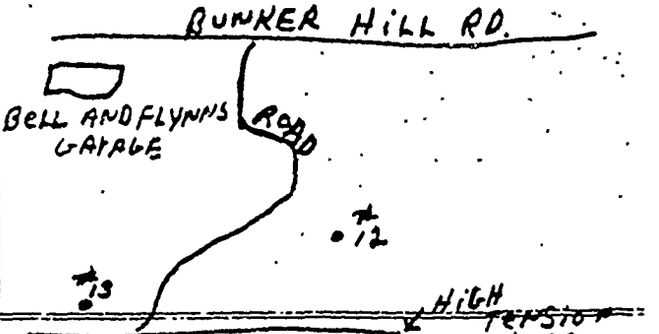
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test .....

Driller John A Braglia

Helpers B. Belczar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #14-77

Address GRAVEL PIT OFF BUNKER HILL RD

Well located at IN STRATHAM N.H. BELL + FLYNN'S PIT County, State of N.H.

Date Drilling started 5-31-77 Date Test Hole Completed 5-31-77

Total depth to bottom of Well 17'4" Diameter Test Hole 2½"

Water stands when not pumping ..... feet ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0'	17'	Clay brown fine sand.
	17'4"	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

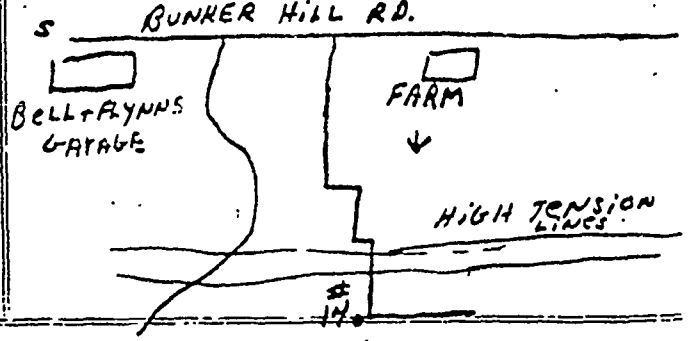
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Well located south east corner of c. ne field

Driller John A Graglia

Helper T. Belezar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #15 AND 15A

Address 1ST GRAVEL PIT OFF BUNKER HILL RD

Well located at IN STRATHAM NH. BELL + RYNNS PIT County, State of N.H.

Date Drilling started 5-31-77 Date Test Hole Completed 5-31-77

Total depth to bottom of Well 4' AND 5' Diameter Test Hole 2½"

Water stands when not pumping ..... feet. ..... inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
#15	4'	REFUSAL
#15A	5'	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

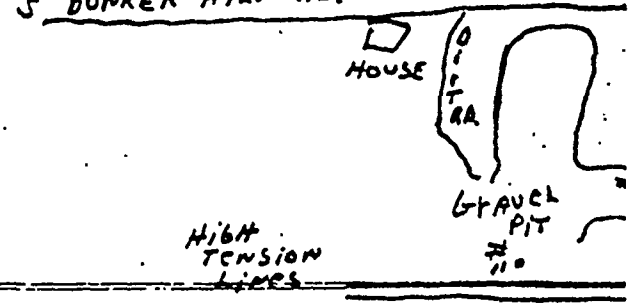
Time Required for Recovery?

Was Well Pulled? BOTH PULLED

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test .....

Driller John A Graglia

Helper R. Belczyk

D. L. MAHER CO.
LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #16 ->>

Address 1ST GRAVEL PIT OFF BUNKER HILL RD

Well located at/IN STRATHAM N.H. BELL + FLYNNS PIT in ... County, State of N.H.

Date Drilling started 6-1-77 Date Test Hole Completed 6-1-77

Total depth to bottom of Well 30' Diameter Test Hole 2½"

Water stands when not pumping 10' feet 5' inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	26	sharp dirty gravel some coarse sand
26'	30'	sharp dirty gravel
	30'	REFUSAL
Set 50 slot screen at 28' exposed screen 6ft. 7ft riser on top of screen inside thread.		

Did Well Clear Up? YES

How Long? 10 MIN

Time Pumped? 1hr

Drawdown Ft. In.

Capacity 40GPM VAC 26"

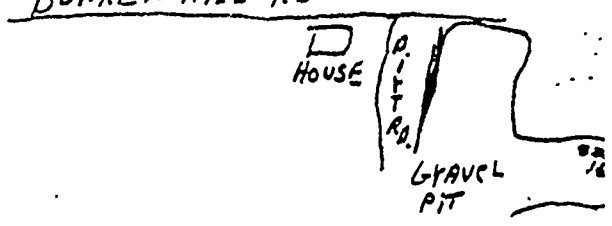
Time Required for Recovery?

Was Well Pulled? NO

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A Broglia

Helpers T Belegan

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for PORTSMOUTH N.H. Test No. #18-77

Address

Well located at STRATHAM N.H. TOWN GRAVEL PIT County, State of N.H.

Date Drilling started 6-2-77 Date Test Hole Completed 6-2-77

Total depth to bottom of Well 23' Diameter Test Hole 2½"

Water stands when not pumping feet inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	fine brown sand and clay
21'	23'	hard pan
	23'	REFUSAL

Did Well Clear Up?

How Long?

Time Pumped?

Drawdown Ft. In.

Capacity

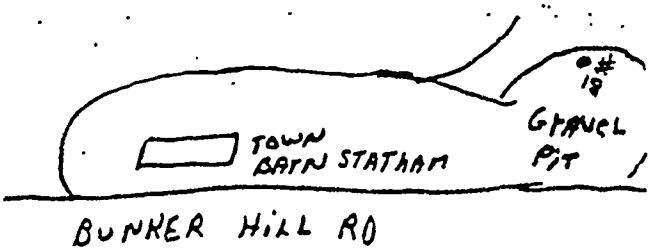
Time Required for Recovery?

Was Well Pulled? YES

Observation What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A Braglia

Helper T. Palazzo

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for Town of Portsmouth N.H. Test No. #42

Address Neil F Finn's

Well located at Gravel Pit in Stratham N.H. off Bunker Hill Rd. County, State of N.H.

Date Drilling started 10-18-77 Date Test Hole Completed 10-18-77

Total depth to bottom of Well 29' Diameter Test Hole 2½"

Water stands when not pumping 13' feet 7" inches from the surface of the ground

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	SHARP Dirty Brown
		gravel and coarse sand.
21'	28'	Sharp : -y gravel
	29'	REFUSAL

Set 40 slot screen at 28' exposed screen 6ft. Screen has 7ft riser on top with inside threads

Did Well Clear Up? YES

How Long? ±hr

Time Pumped? 2hrs

Drawdown Ft. In.

Capacity 60gpm VAC 16"

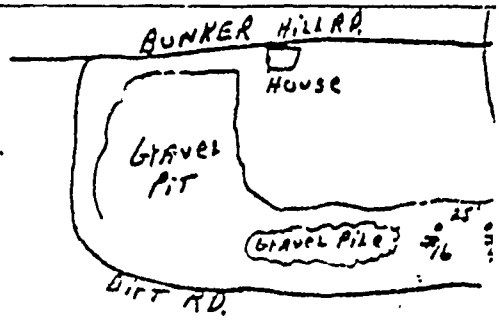
Time Required for Recovery?

Was Well Pulled? NO

Observation NO What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test When pumping 1½ at 60gpm pulled well 16 down 1"

Driller John A. Broglia

Helpers T. Pelgar

D. L. MAHER CO.

LOG OF TEST WELL

Log of Well for TOWN OF PORTSMOUTH N.H. Test No. #43

Address Bell + Flynn's

Well located at GRAVEL PIT IN STRATHAM NH OFF in BUNKER HILL RD. County, State of N. H.

Date Drilling started 10-19-77 Date Test Hole Completed 10-19-77

Total depth to bottom of Well 30' Diameter Test Hole 2½"

Water stands when not pumping 11' feet 4" inches from the surface of the ground.

EACH STRATUM	DEPTH OF STRATA	FORMATION FOUND EACH STRATUM
0	21'	Brown Sharp SAND
		AND GRAVEL.
21'	28'	SHARP Brown GRAVEL
		WITH FINE SAND AND CLAY
	30'	REFUSAL
Set 40 slot screen at 28' exposed 6ft. screen has 7ft riser on top with inside threads		

Did Well Clear Up? YES

How Long? ½hr

Time Pumped? 1hr

Drawdown Ft. In.

Capacity 5GPM VAC 26"

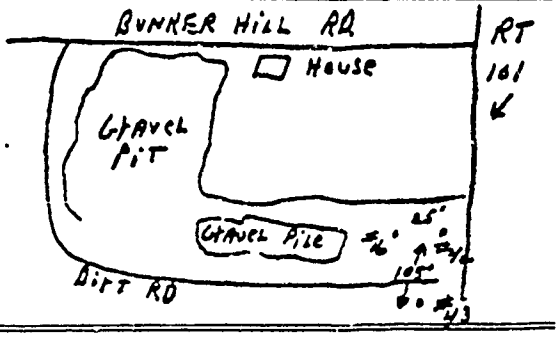
Time Required for Recovery?

Was Well Pulled? NO

Observation NO What Depth?

Was Observation Well Pulled?

Map of Location



Remarks and opinion of Test

Driller John A Braglia

Helper T. Pelczar

APPENDIX F

SEISMIC REFRACTION BY THE CORPS OF ENGINEERS

s.a. alsup

SEISMIC REFRACTION INVESTIGATIONS
CHESTER, NEW HAMPSHIRE

Prepared For: U.S. Army Corps of Engineers
New England Division
Waltham, Massachusetts

File 79113C
May 22, 1979

SEISMIC REFRACTION INVESTIGATIONS
GROUNDWATER STUDIES
CHESTER, NEW HAMPSHIRE

1.00 INTRODUCTION

This report presents the results of seismic refraction investigations conducted in Chester, New Hampshire for the U.S. Army Corps of Engineers, New England Division by S.A. Alsup & Associates of Newton, Massachusetts. The location of the site investigated is shown in Figure 1. All work was performed in accordance with the requirements of Contract DACW33-79-C-0025. The results reported here are based upon data collected in the field on May 9, 10, and 11, 1979.

The purpose of the investigation was to determine the depth to the groundwater table and aquifer thickness in the area investigated as inferred from seismic refraction data beneath profile lines specified by the Corps of Engineers. Sketch layouts of the lines specified are shown in Figures 2 and 3. All profiles specified were completed during the investigation, with the total of seven lines ~~some~~ 5760 linear feet.

Most of the profiles were made in open areas or along the shoulders of roadbeds. Quality of the resulting data is very good, and no difficulties were encountered in the field operations or in data analysis. Overall accuracy of the resulting data is anticipated to be within 10% of actual conditions in the subsurface (depth to interfaces and compressional wave velocities).

File 79113C
May 22, 1979

s.a. alsup

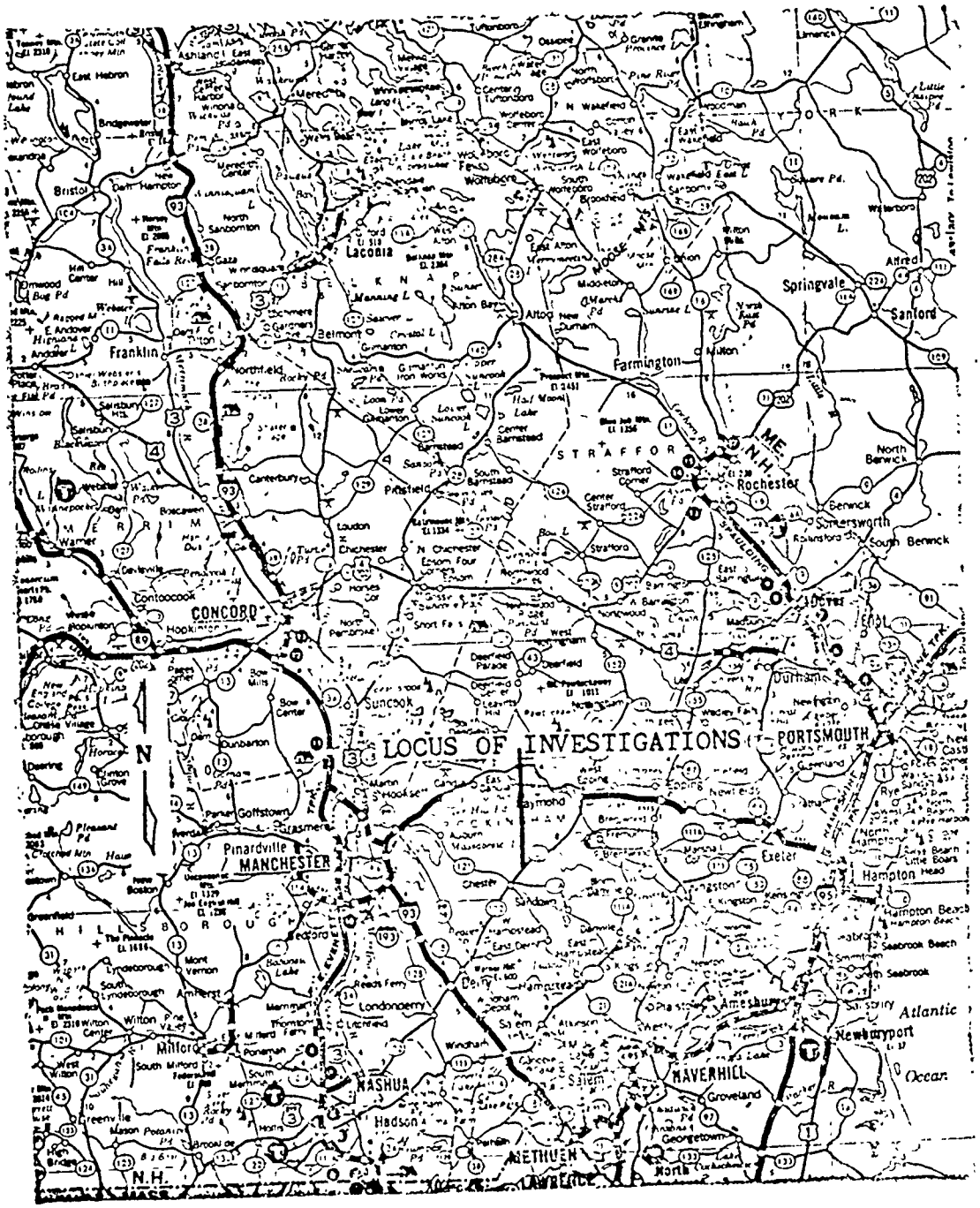


Figure 1. Locus of investigations, Chester, New Hampshire.

2.00 METHOD OF INVESTIGATON

The seismic refraction profiling was performed using and SIE Model RS-4 Refraction Seismograph with 12-element geophone spreads with 20-foot geophone spacings. The RS-4 provides 13 channel recording capability (12 data channels and 1 shot initiation time channel) on self-developing dry-write seismograms. Small explosive charges were used throughout the investigation as an energy source (1/8 lb 40% extra gel dynamite), with all charges detonated in stemmed and tamped holes approximately two feet deep. "Instadet" electric blasting caps were used to initiate each charge.

"End" shots were detonated at 10-foot spacing from the end of each spread, with "quarter" and "half" shots at 80- or 120-foot spacing along the spread typical. All spreads were "reversed" with shots at each end, and all end shots were repeated as the spread was advanced along each line for analysis accuracy and data redundancy.

The seismic data were analyzed according to the standard "cross-over distance" technique (distances from shot points to velocity takeover intersections determined from measurements of compressional wave first arrival times), and all depths calculated from the data are assumed to represent conditions below shot points.

Refraction velocities are represented as the average of velocities measurement from reversed profile data sets. Separation of units consisting of significantly different but consistent refraction velocity ranges is done by smoothed extrapolation laterally of conditions calculated at each shot point to adjacent shot point results.

3.00 RESULTS OF INVESTIGATIONS

Please note that no elevations were taken during the field investigations, and all elevations in the profiles discussed below are referenced to ground surface along the refraction lines. Local topographic variations observed during the field operations are included in the profiles presented. Depth below ground surfaces to changes in velocity and local topography are representative of actual conditions within the limitations of the accuracy of the field observations.

Line 1 (Figure 4) represents typical geological conditions of the area investigated near the gravel pit. Unconsolidated, low density granular soil approximately 15 to 40 feet thick lies directly on the bedrock surface. A zone of groundwater saturation is indicated about 12 feet below ground surface with about 20. of thickness between STA 0+80 to 6+00. Saturation apparently pinches out near STA 0+80, with unsaturated soil resting directly on bedrock between STA 0+00 to 0+80. Bedrock velocities are indicative of sound competent bedrock.

Line 2 (Figure 4) crosses Line 1 at STA 1+00 (1:4+80) in the gravel pit, with the intersection showing similar subsurface conditions extending laterally (unconsolidated granular deposits with a water saturated zone over bedrock). The groundwater zone, ranging in thickness from 12 to 24 feet is typically about 15 feet below ground surface according to these results. The bedrock surface shows a tendency to slope eastward beneath the profile line, with velocities indicative of sound competent rock, ranging in depth below surface from about 30 to 40 feet.

Line 3 (Figure 5) is south and above the floor of the gravel pit where Lines 1 and 2 were obtained, and the results show the added thickness of the increased thickness of unconsolidated granular kame deposits. As suggested by the southerly end of Line 1, depth to the bedrock surface increases to the south of the gravel pit area, but the increase is not too much (the surface to the south of the pit is some 15 to 20 feet higher than the floor of the pit). The groundwater table is between 25 and 30 feet below ground surface along Line 3, with groundwater saturation indicated in a zone 30 to 40 feet thick above the bedrock surface. Refraction velocities in the bedrock between STA 0+00 and 1+60 indicated weathered or fractured bedrock, with the rock becoming more competent from STA 1+60 to 4+80.

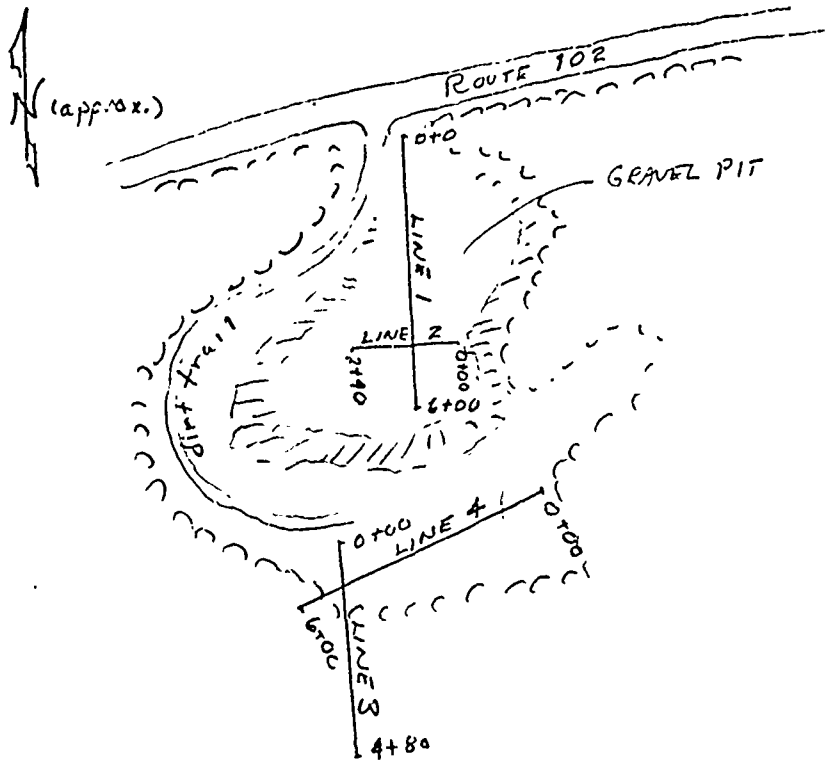
Line 4 (Figure 6) intersects line 3 at 3:0+50 and 4:4+80, again indicating the thick unconsolidated deposits with a saturated zone above the bedrock. The unsaturated part of the unconsolidated zone ranges between 25 and 30 feet in thickness, with the thickest section (40 feet) below STA 0+80. Groundwater is indicated between STA 0+80 and 6+00, with the groundwater table pinching out eastward below STA 0+80. Maximum thickness of the saturated zone is about 30 feet. Unconsolidated deposits without significant groundwater are indicated to be resting on the bedrock surface between STA 0+00 and 0+80.

Line 5 (Figure 7) more or less parallels the lakeshore, beginning along Line 7 at STA 24+00 beside the access road to the Rod and Gun Club. Local topography is highly variable in the area of the profile from 0+00 to about 5+60, but becomes more or less flat from 5+60 to 8+40. The thin, dry surficial layer typical of the area ranges in thickness from 3 to about 15 feet above the

groundwater table, with the saturated thickness of the aquifer ranging between 15 and 40 feet. The saturated zone pinches out near STA 5+60, and no significant saturation is indicated between STA 5+60 and 8+40. The saturated zone is indicated to lie on an undulating bedrock surface below Line 5, with shallow bedrock valleys below STA 2+40 and 4+80 providing aquifer thickness of 37 feet and 25 feet, respectively. Bedrock velocities are typical of unfractured and unweathered rock.

Line 6 (Figure 8) intersects Line 5 at 6;0+20 and 5;6+00, confirming the lack of indication of groundwater saturation in the seismic data with a layer of unconsolidated materials directly on the bedrock with a thickness of about 16 to 20 feet. A wedge of glacial till is indicated between STA 2+80 to 4+00, with the thickest section below 4+00. No groundwater saturation was indicated from the seismic investigation beneath this line.

Line 7 (Figures 9 through 11) extends from Route 102 to the southerly limit of the parking area at the Rod and Gun Club along the access road to the Club. Unconsolidated granular deposits are indicated beneath the entire line, with unsaturated thickness ranging between 5 and 18 feet. Pockets of groundwater are indicated below ground surface in undulations of the bedrock surface between STA 9+60 and 14+40, STA 14+40 to 16+40, and from STA 18+00 to the end of the line near the stream. Maximum thickness of the zone of saturation is 35 feet beneath STA 22+80, and the zone thins to zero at several pinchouts along the alignment. Significant groundwater saturation is absent between STA 0+00 to 0+60 and STA 16+80 to 18+00 on the basis of the seismic data.



ROD & GUN
CLUB

Figure 2. Approximate locations of seismic lines, Chester, New Hampshire refraction investigations.

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May 22, 1979

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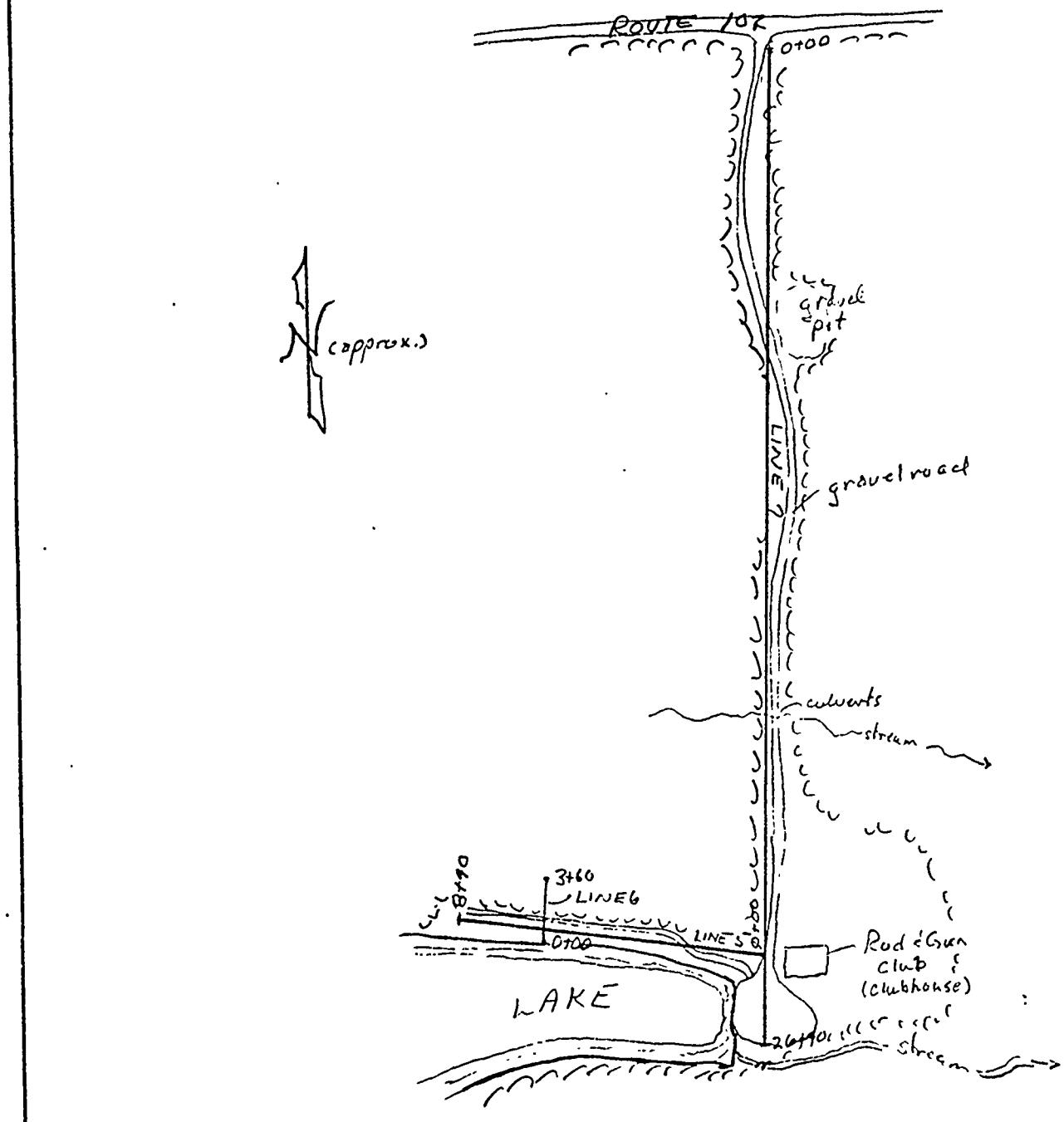
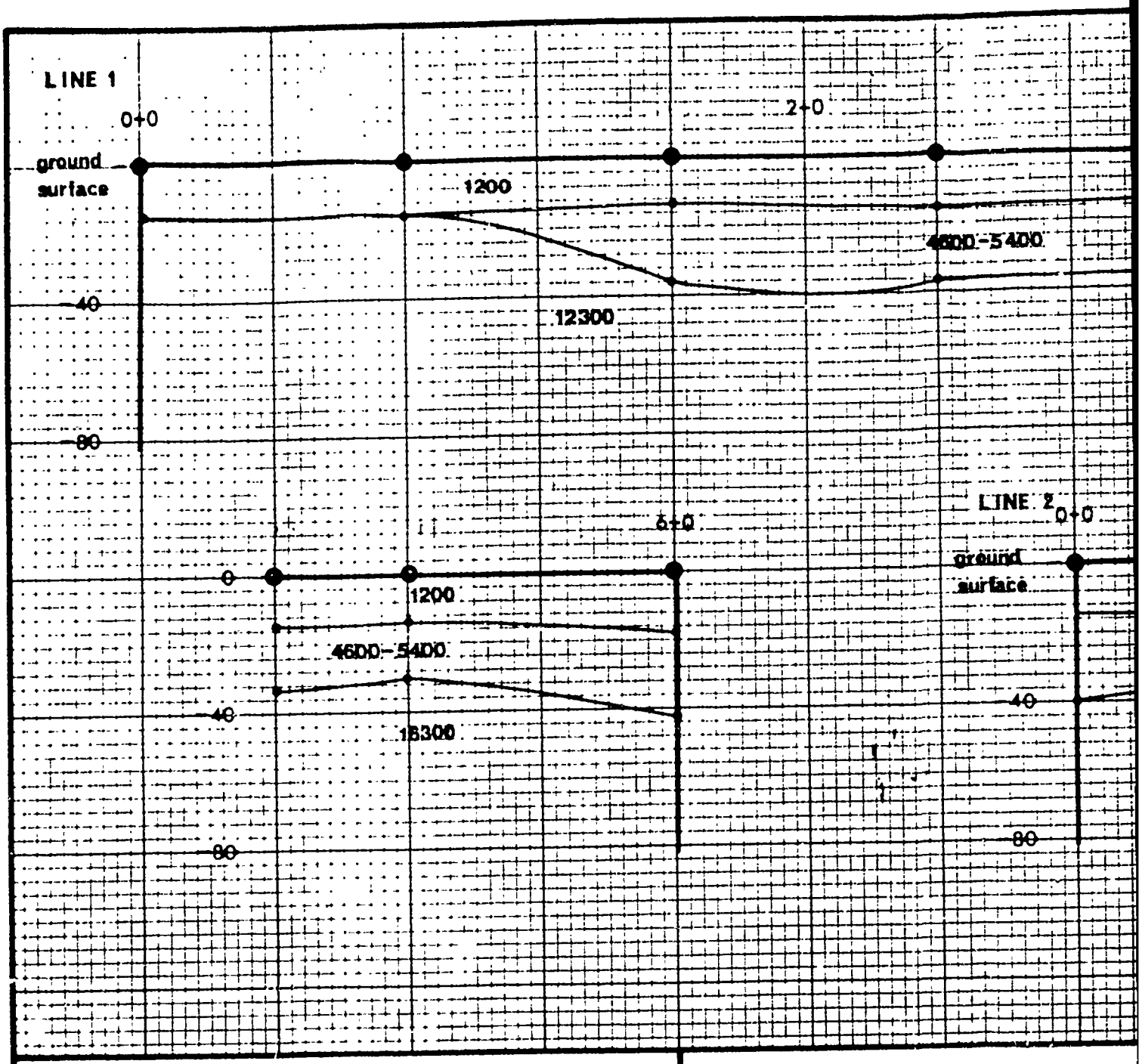


Figure 3 Approximate locations of seismic lines, Chester, New hampshire refraction investigations.



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEOPHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS 1/3%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

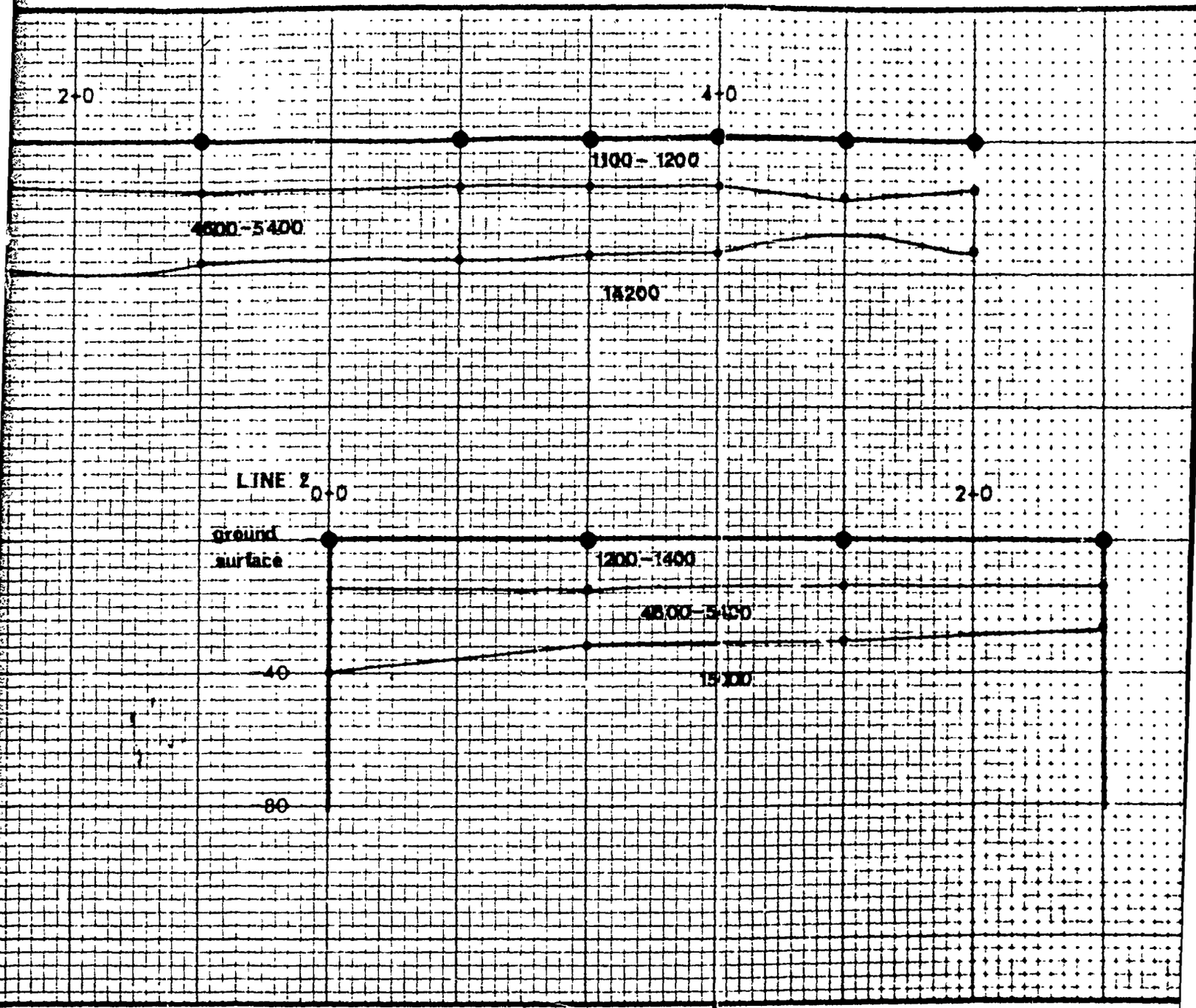
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS
GEOPHONE SPREAD
INFERRED SUBSURFACE VELOCITY BOUNDARIES
SEISMIC WAVE VELOCITIES IN FEET PER SECOND

1600
4700
10200

5/79 KRM

CHESTER, NH

SEISMIC SURVEY PROFIL

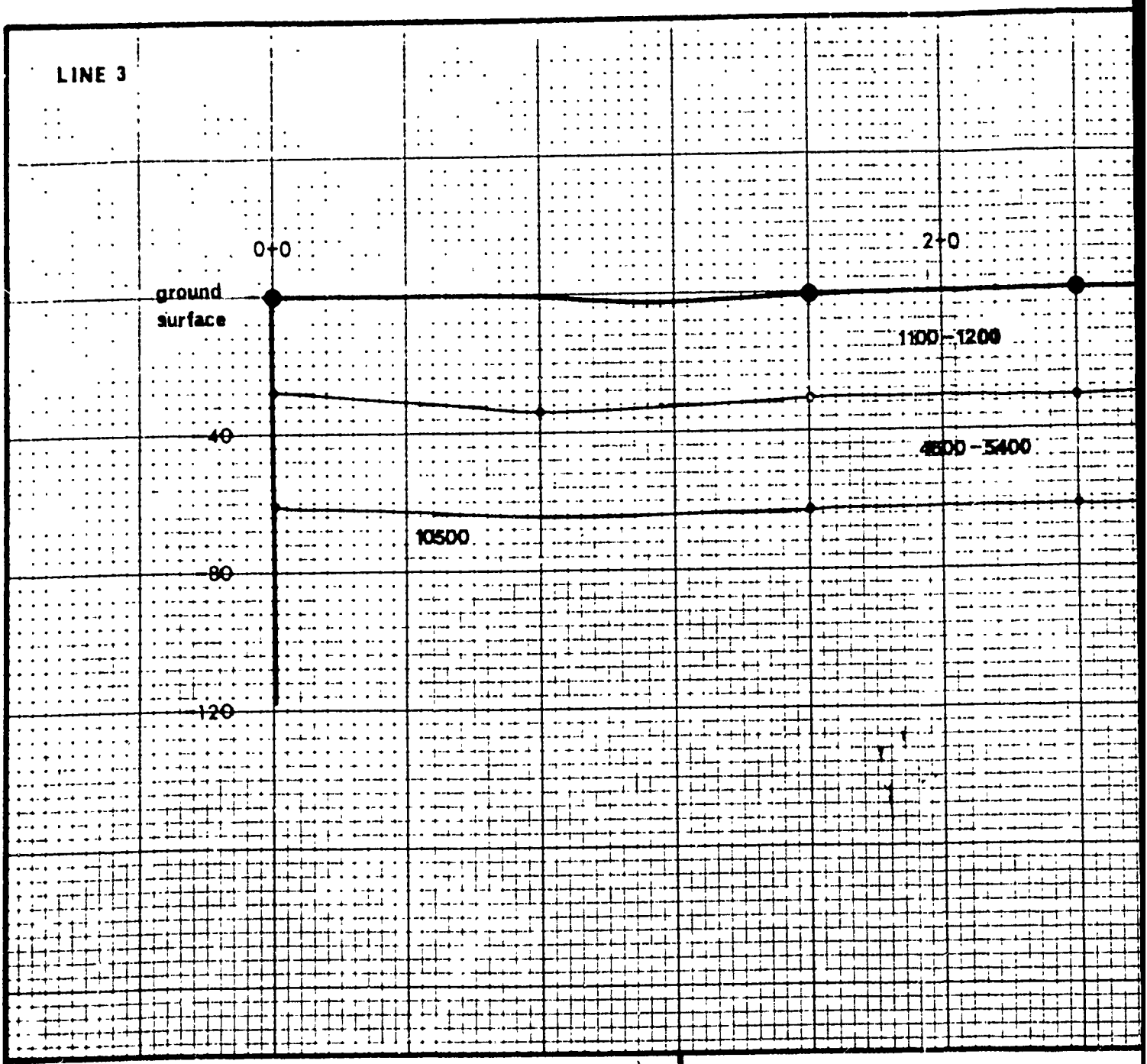
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FIGURE 4

2



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

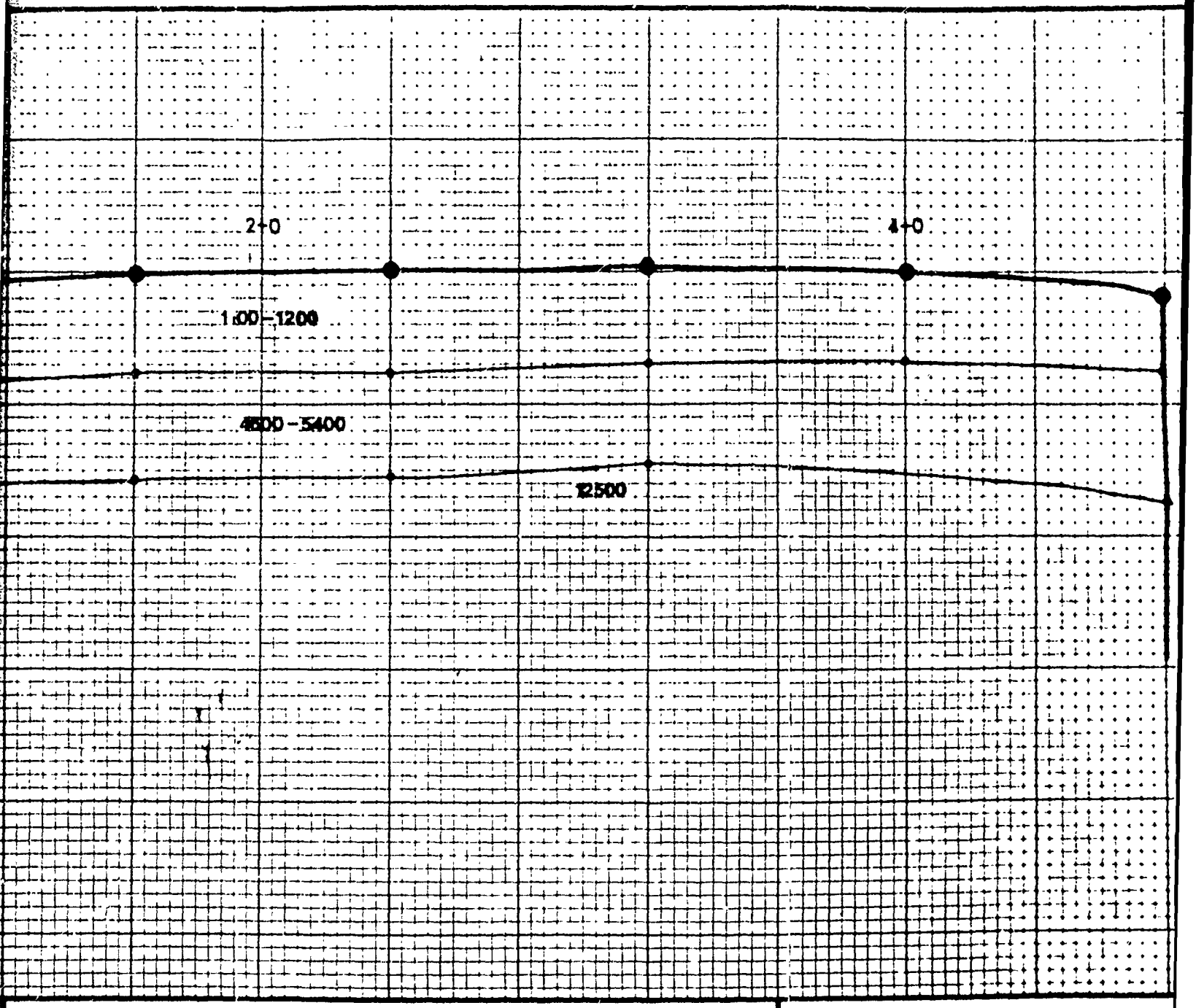
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——————

GEOPHONE SPREAD ——————

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——————

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——————



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS

GEOPHONE SPREAD

INFERRED SUBSURFACE VELOCITY BOUNDARIES

SEISMIC WAVE VELOCITIES IN FEET PER SECOND

1600

4700

10200

5/79 KRM

CHESTER, NH

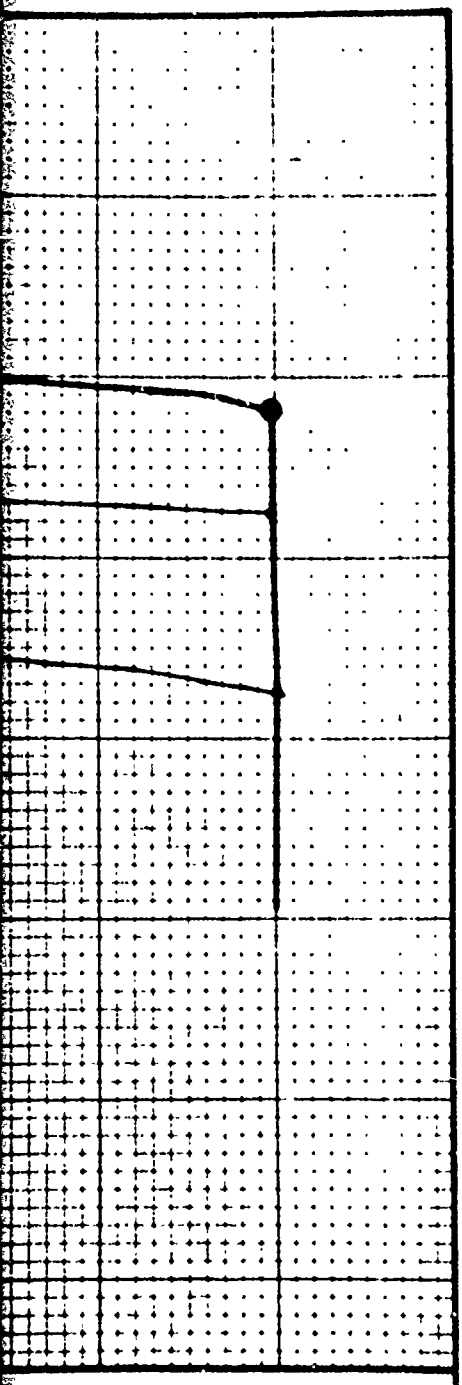
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Newton, MA

FILE NO 7913 C

2 FIGURE



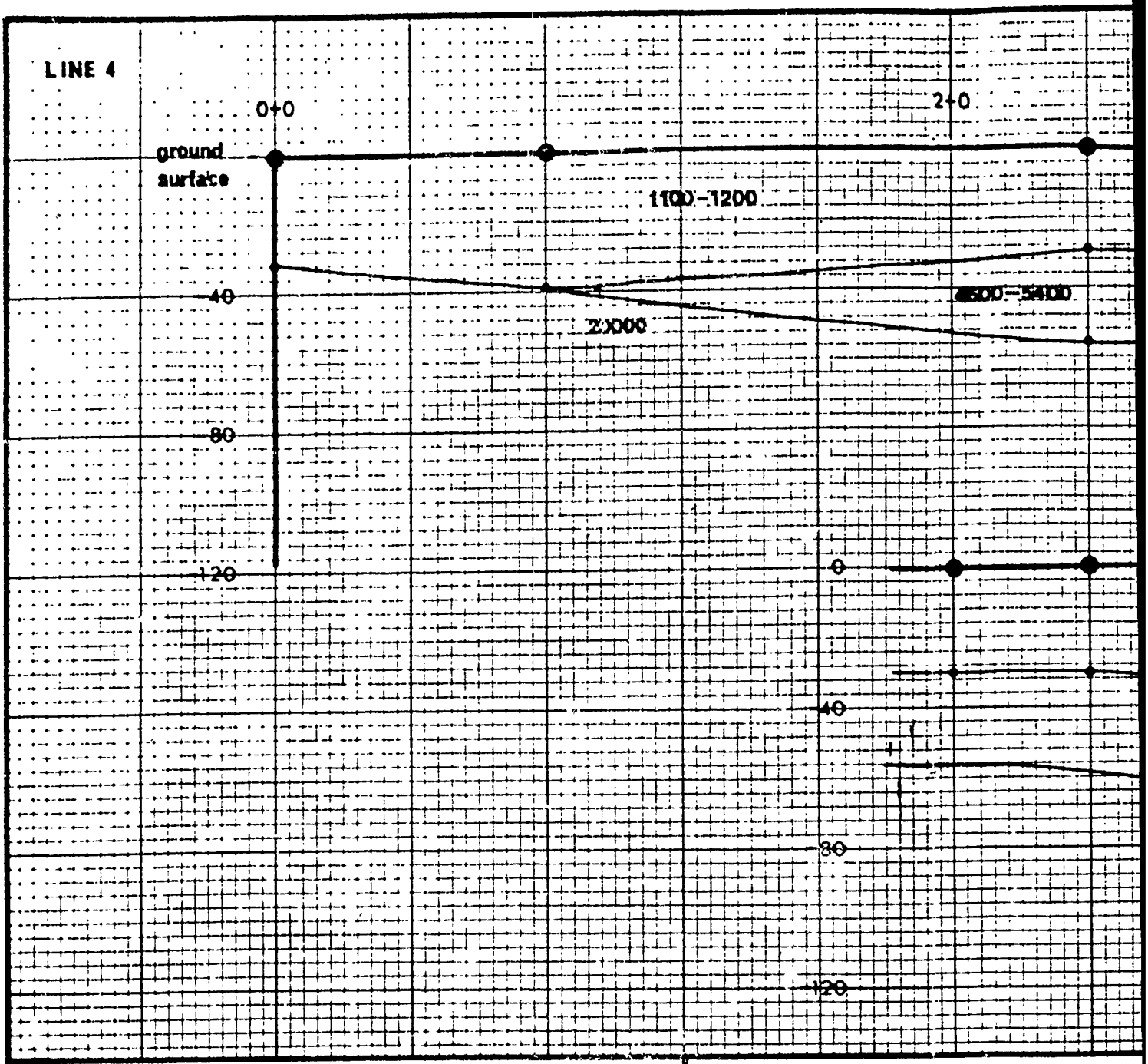
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Newton, MA

NO 79113 C

FIGURE 5



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEOPHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

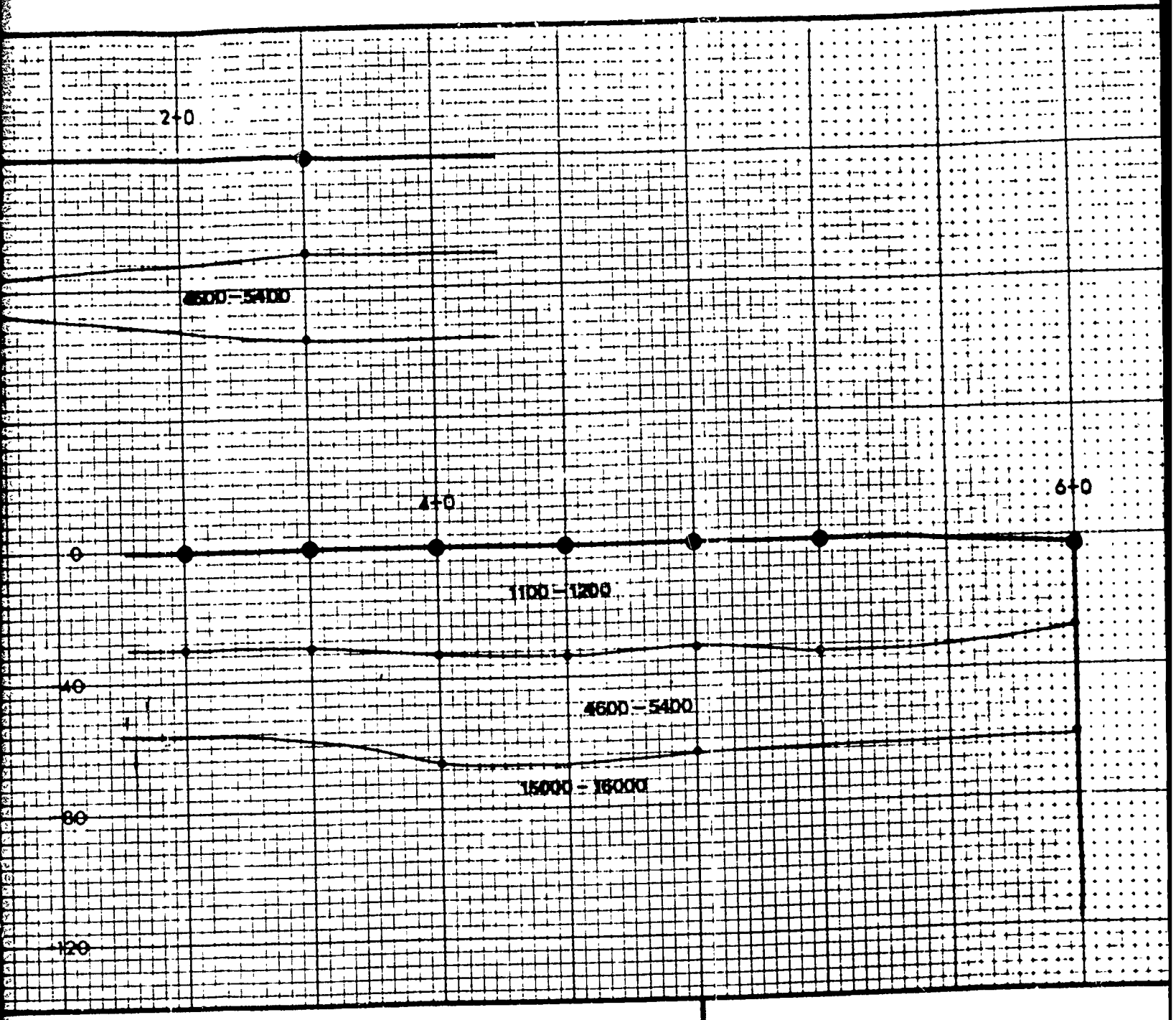
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"= 40'
HORIZONTAL

SHOT POINTS
GEOPHONE SPREAD
INFERRED SUBSURFACE VELOCITY BOUNDARIES
SEISMIC WAVE VELOCITIES IN FEET PER SECOND

1600
4700
10200

5/79 KRM

CHESTER, NH

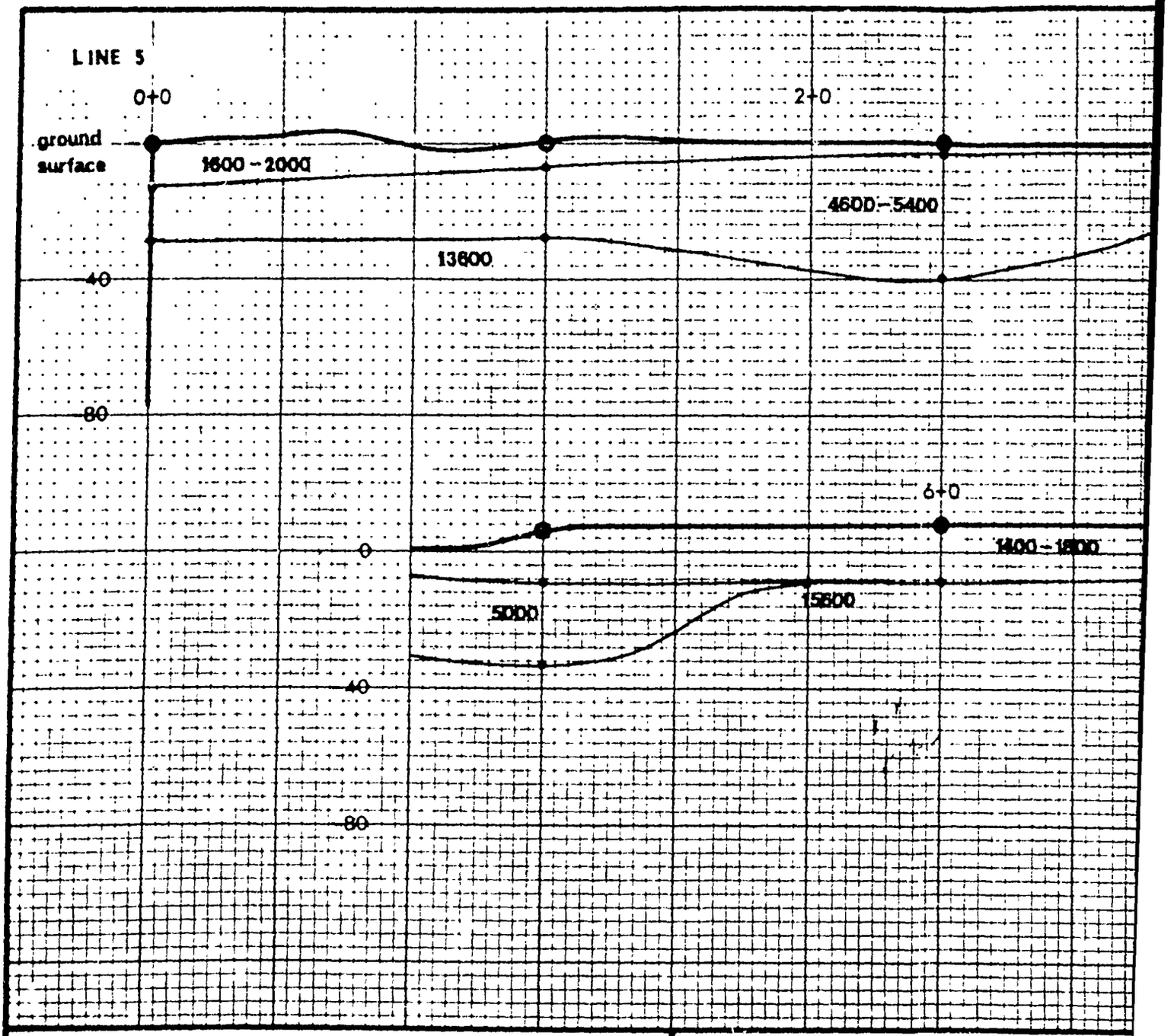
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FIGURE 6



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDIT-IONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10%. DEPTHS TO INFERRED SATURAT-ED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

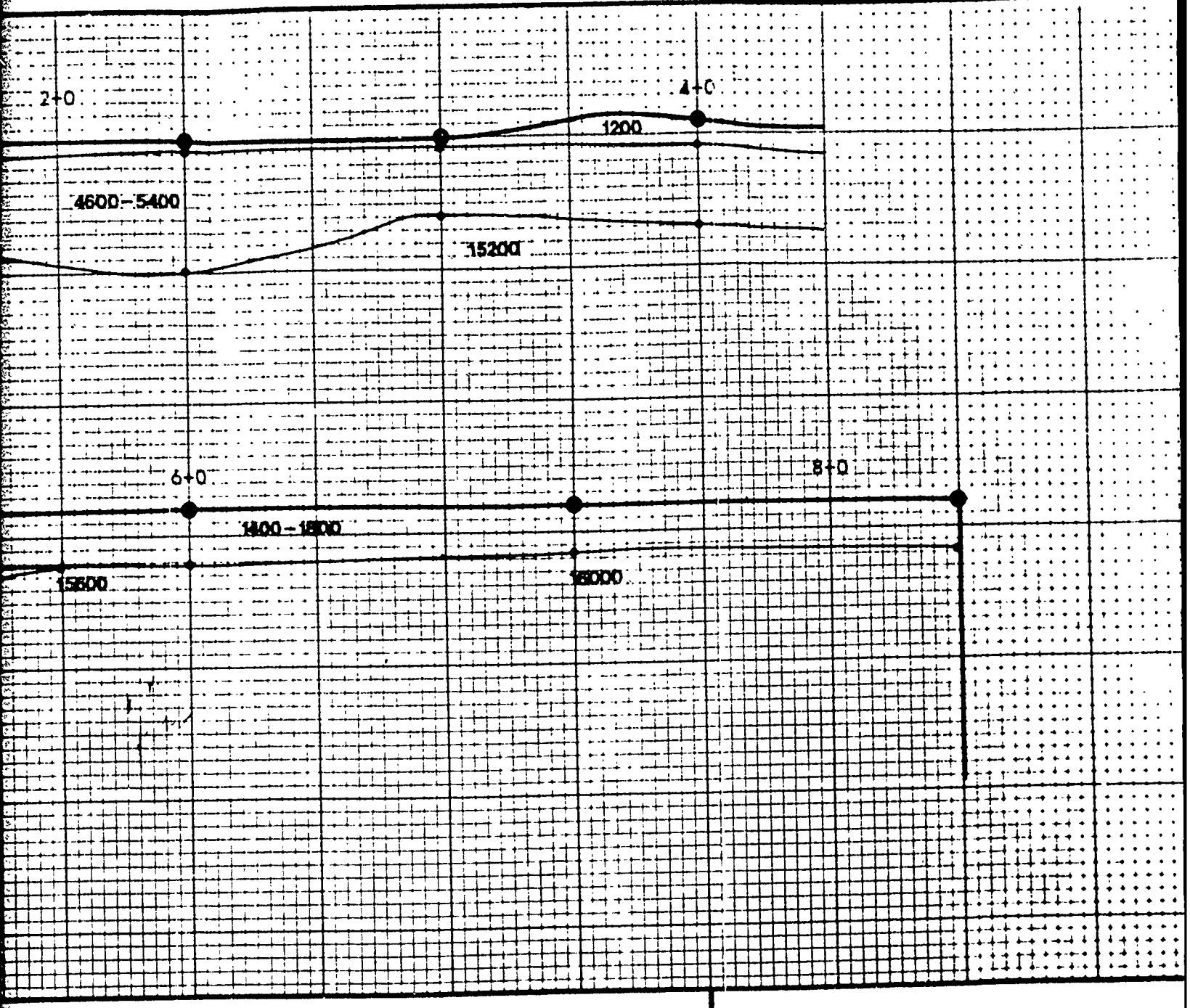
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——————

GEOPHONE SPREAD ——————

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——————

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——————



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ——— 4700

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND

5/79 KRM

CHESTER, NH

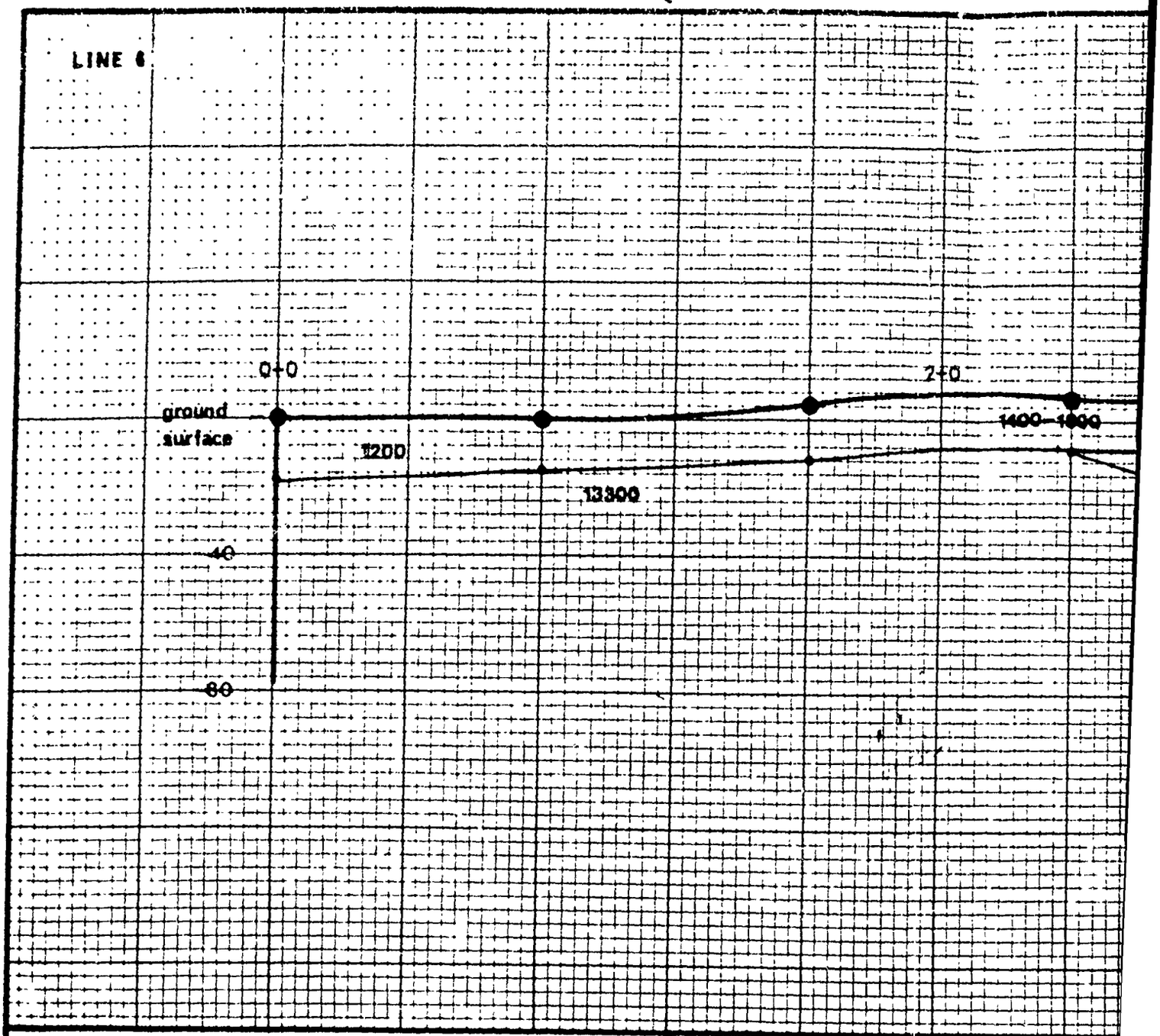
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FIGURE 7



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

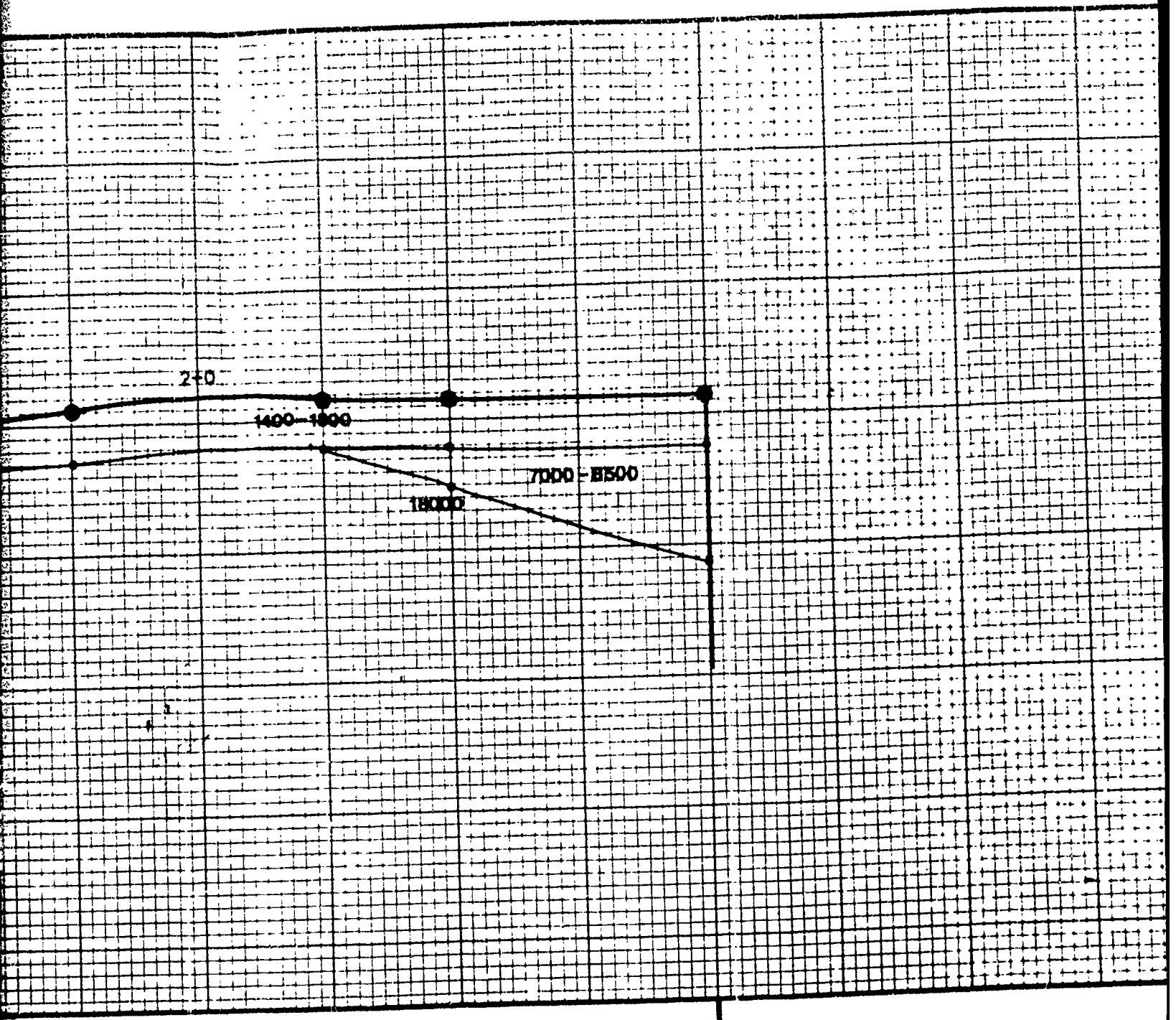
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——————

GEOPHONE SPREAD ——————

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——————

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——————



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS
GEOPHONE SPREAD
INFERRED SUBSURFACE VELOCITY BOUNDARIES
SEISMIC WAVE VELOCITIES IN FEET PER SECOND

1600
4700
10200

5/79KRM

CHESTER, NH

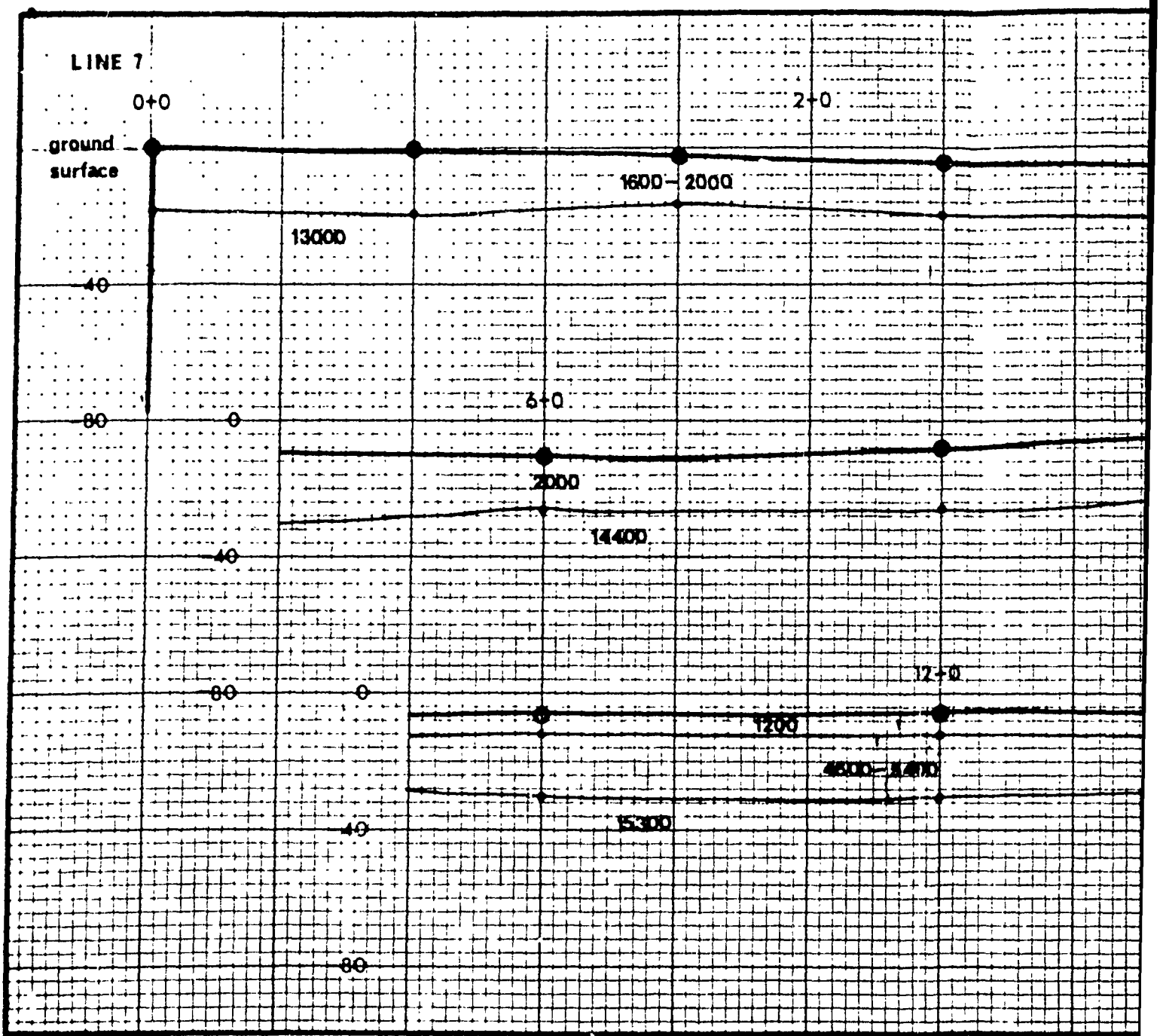
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FIGURE 2



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDIT-I BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

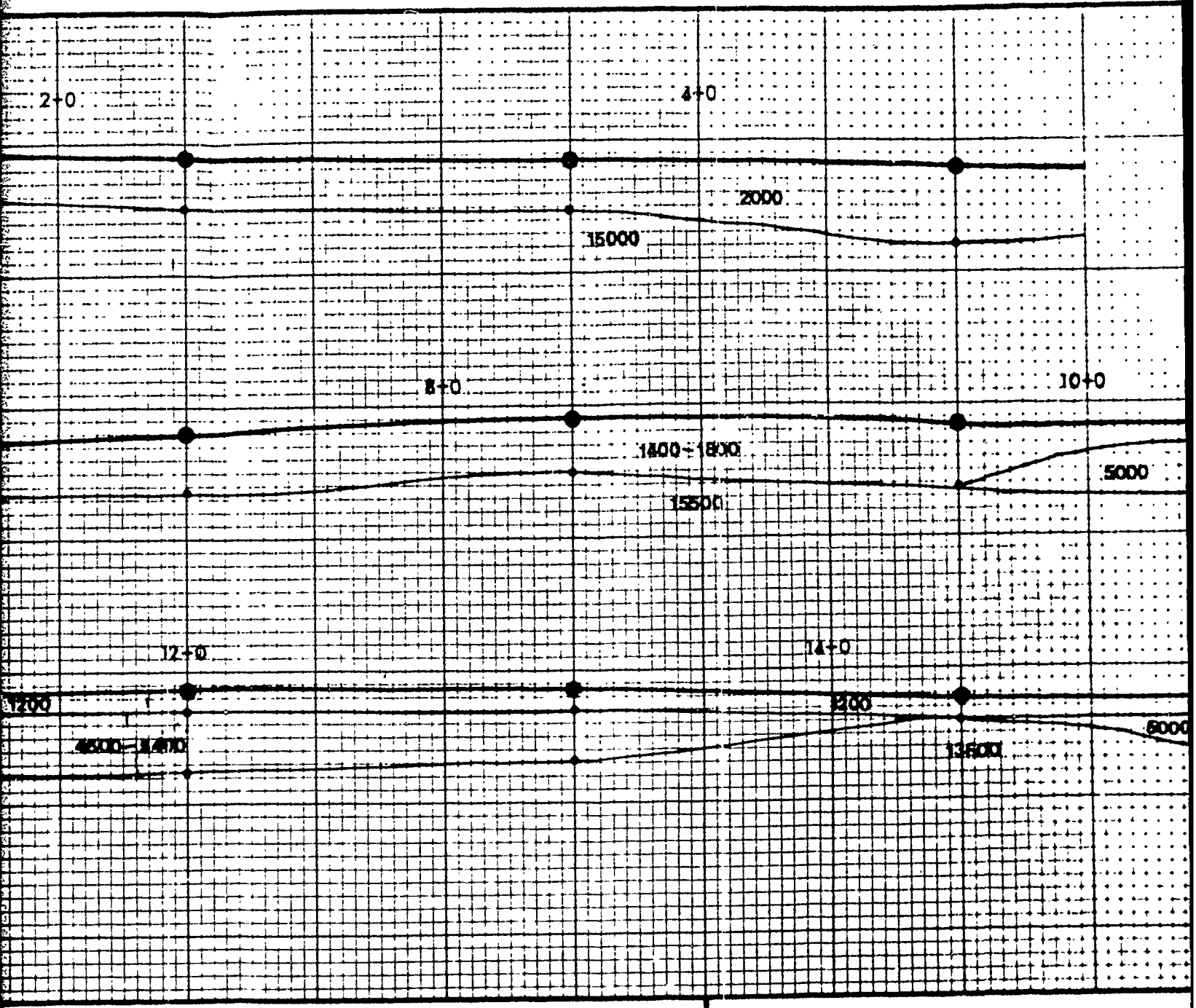
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ———

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 4700 / 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ———

5/79 KRM

CHESTER, NH

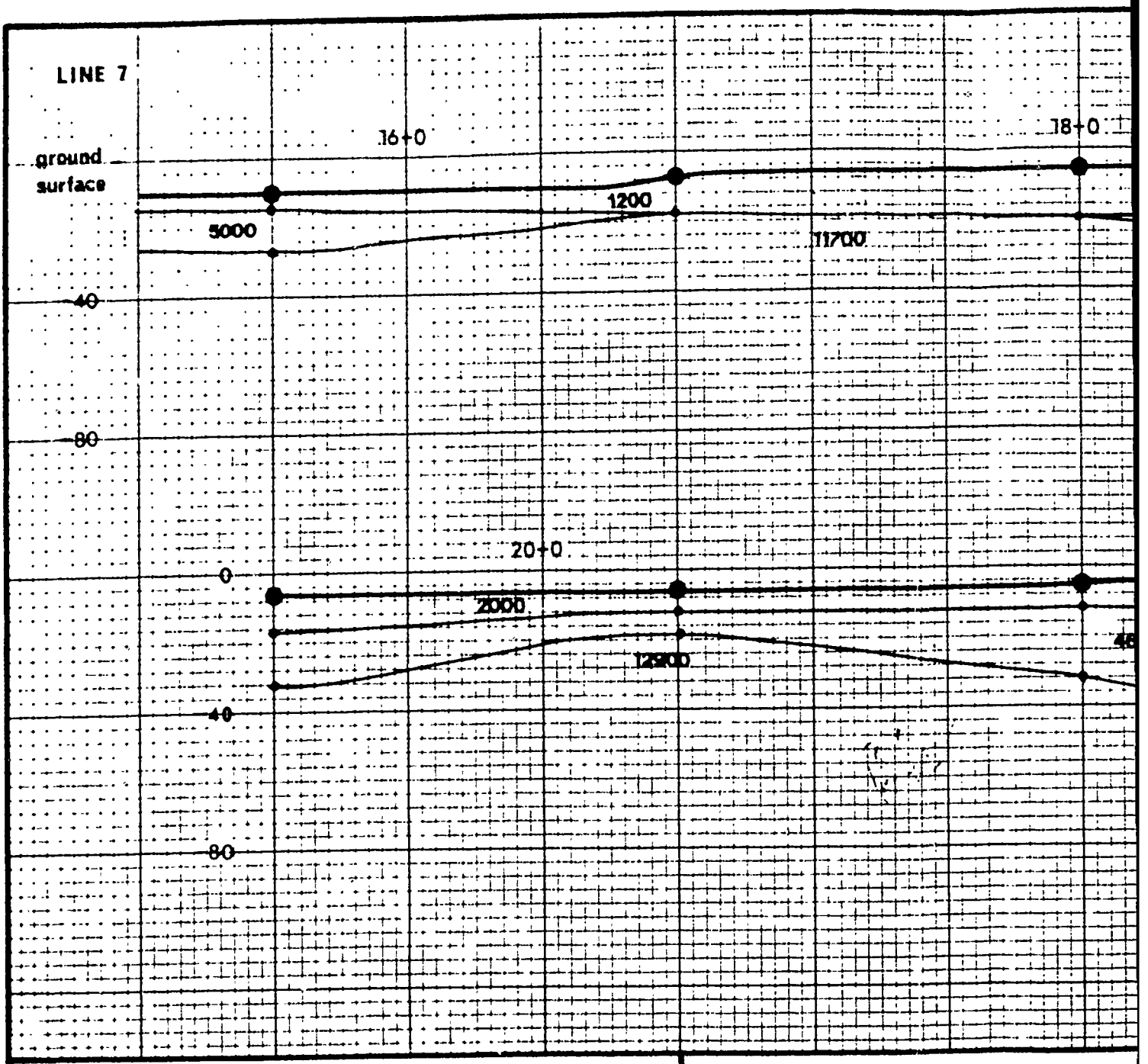
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FIGURE 9



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

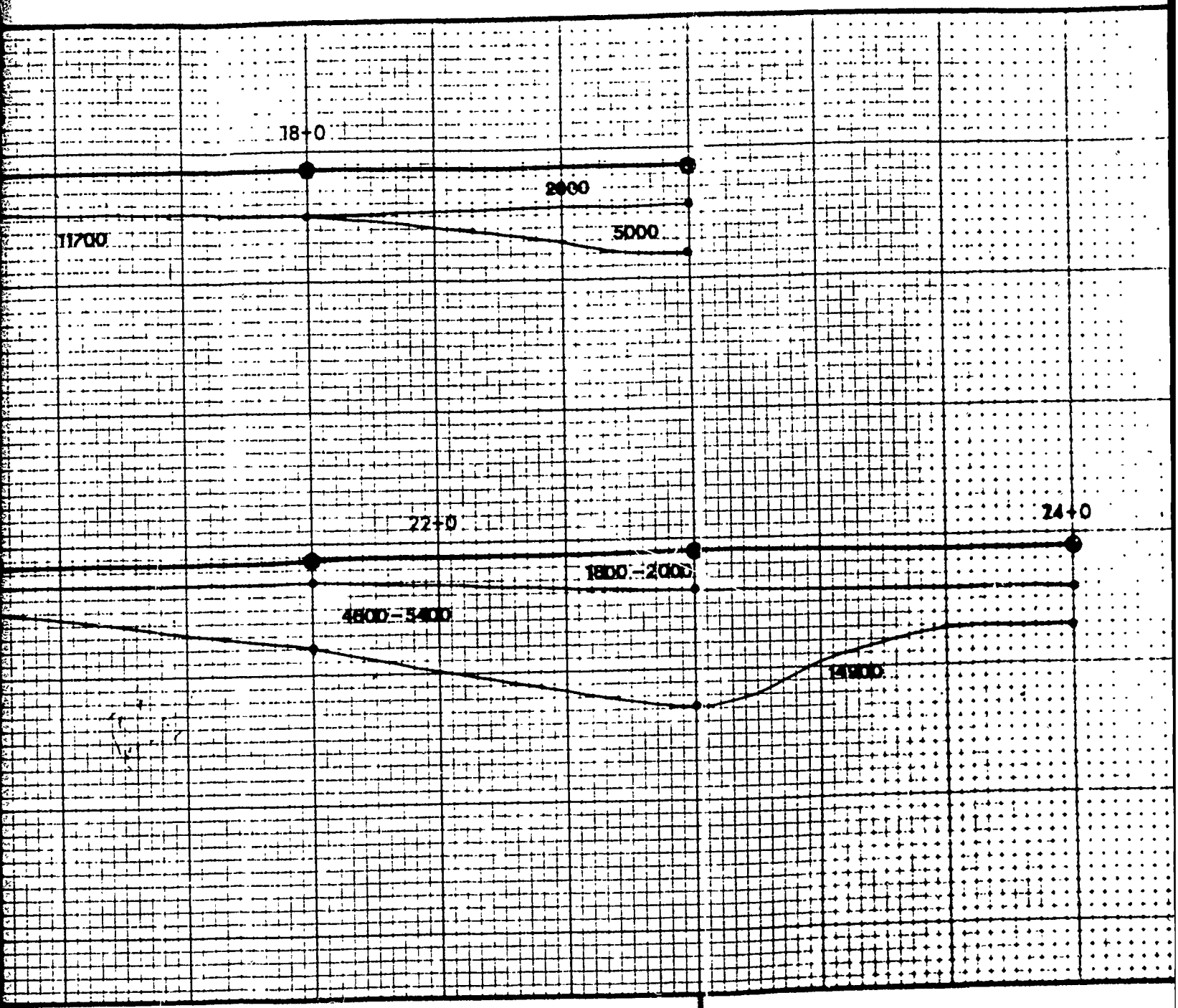
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——————

GEOPHONE SPREAD ——————

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——————

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——————



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——▶ 1600

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES —— 4700 —— 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——▶

5/79 KRM

CHESTER, NH

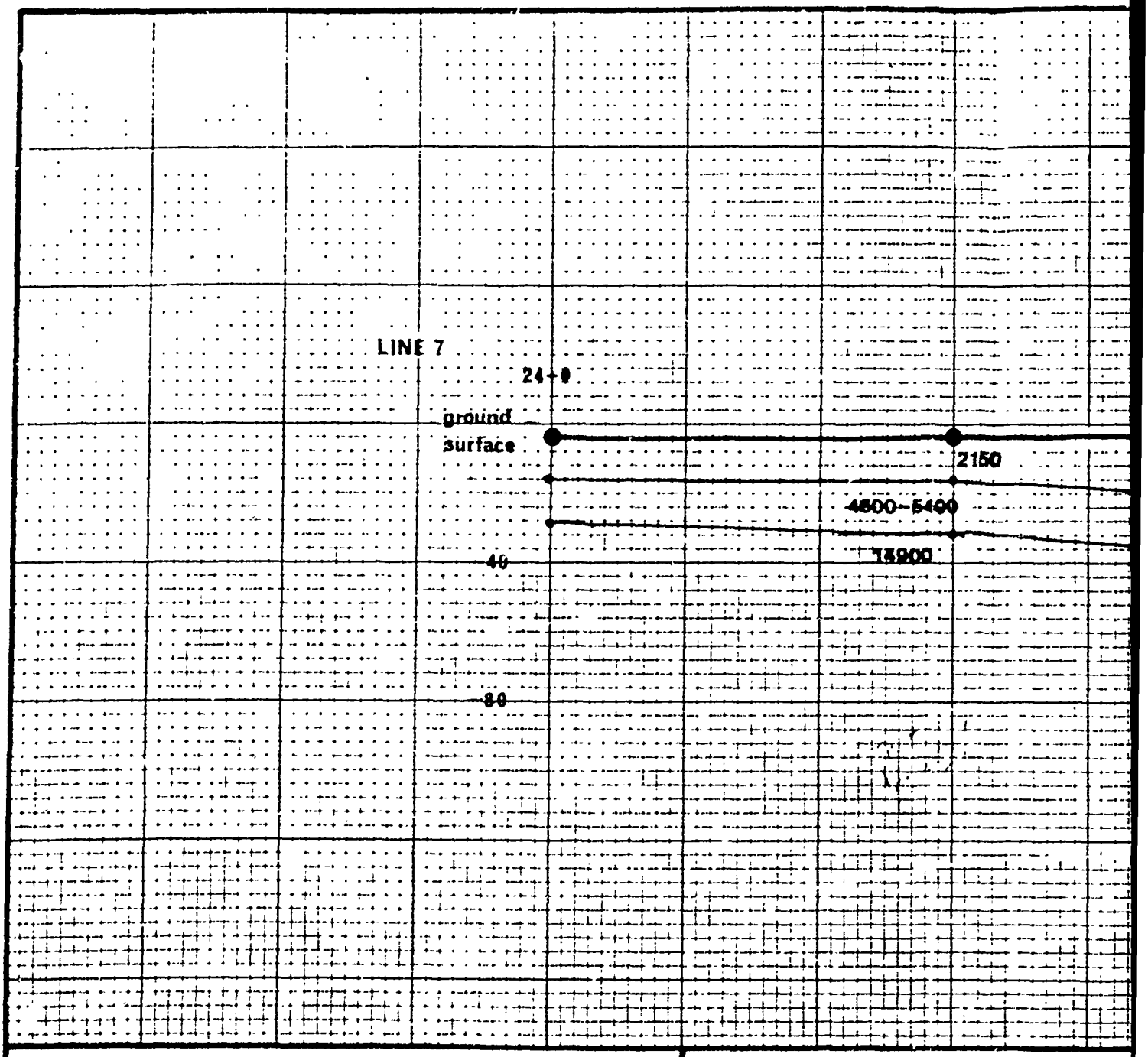
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Newton, MA

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FIGURE 10



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

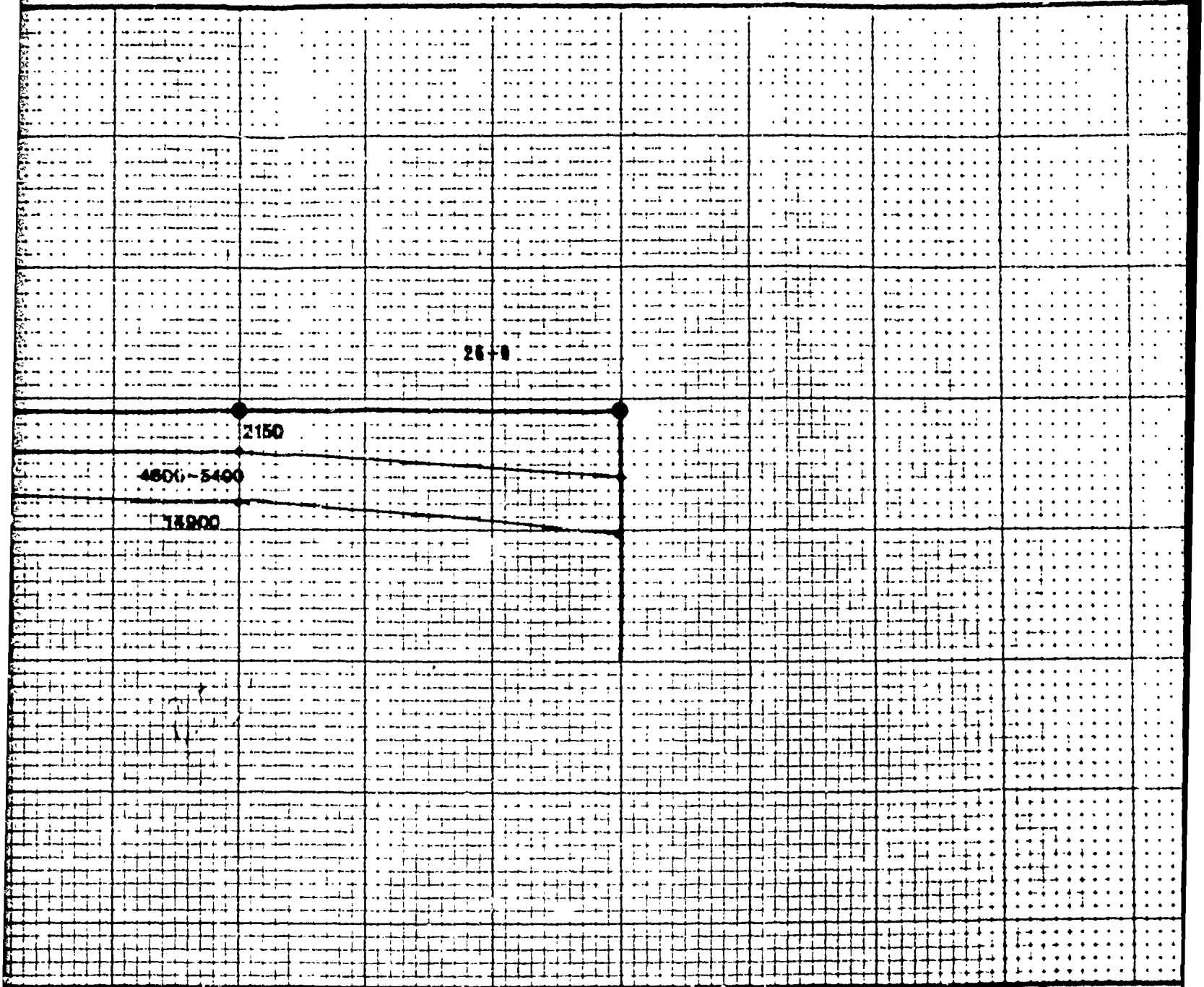
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS
GEOPHONE SPREAD
INFERRED SUBSURFACE VELOCITY BOUNDARIES
SEISMIC WAVE VELOCITIES IN FEET PER SECOND

1600
4700
10200

5/79KRM

CHESTER, NH

SEISMIC SURVEY PROFI
GEOPHYSICAL SERVICES DEPART

S.A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113C

FIGURE 2

s.a. alsup

SEISMIC REFRACTION INVESTIGATIONS
DEERFIELD, NEW HAMPSHIRE

Prepared For: U.S. Army Corps of Engineers
New England Division
Waltham, Massachusetts

File 79113E
July 13, 1979

File 79113E
July 13, 1979

s.a. alsup

SEISMIC REFRACTION INVESTIGATIONS
GROUNDWATER STUDIES
DEERFIELD, NEW HAMPSHIRE

1.00 INTRODUCTION

This report presents the results of seismic refraction investigations conducted in Deerfield, New Hampshire for the U.S. Army Corps of Engineers, New England Division by S.A. Alsup & Associates of Newton, Massachusetts. Figure 1 shows the location of the site investigated. All work was performed in accordance with the requirements of Contract DACW33-79-C-0025. The results reported here are based upon data collected in the field on July 5 and 6, 1979.

The purpose of the investigation was to determine the depth to the groundwater table and aquifer thickness in the area investigated as inferred from seismic refraction data beneath profile lines specified by the Corps of Engineers. Sketch layouts of the lines specified are shown in Figures 2 and 3. All profiles specified were completed during the investigation, with the total of five lines totaling 3,120 linear feet.

Profiles 1 and 3 were located on a gravel road in an open field, Profile 2 ran East-West, parallel to the Lamprey River, in a lightly wooded swamp. Profile 4 was located on a gravel road in a moderately dense wooded area. Profile 5 began in a gravel pit, and terminated in a moderately dense wooded area. Dry and favorable ground conditions permitted the end of Profile 5 to be moved from the top of the esker, as originally planned,

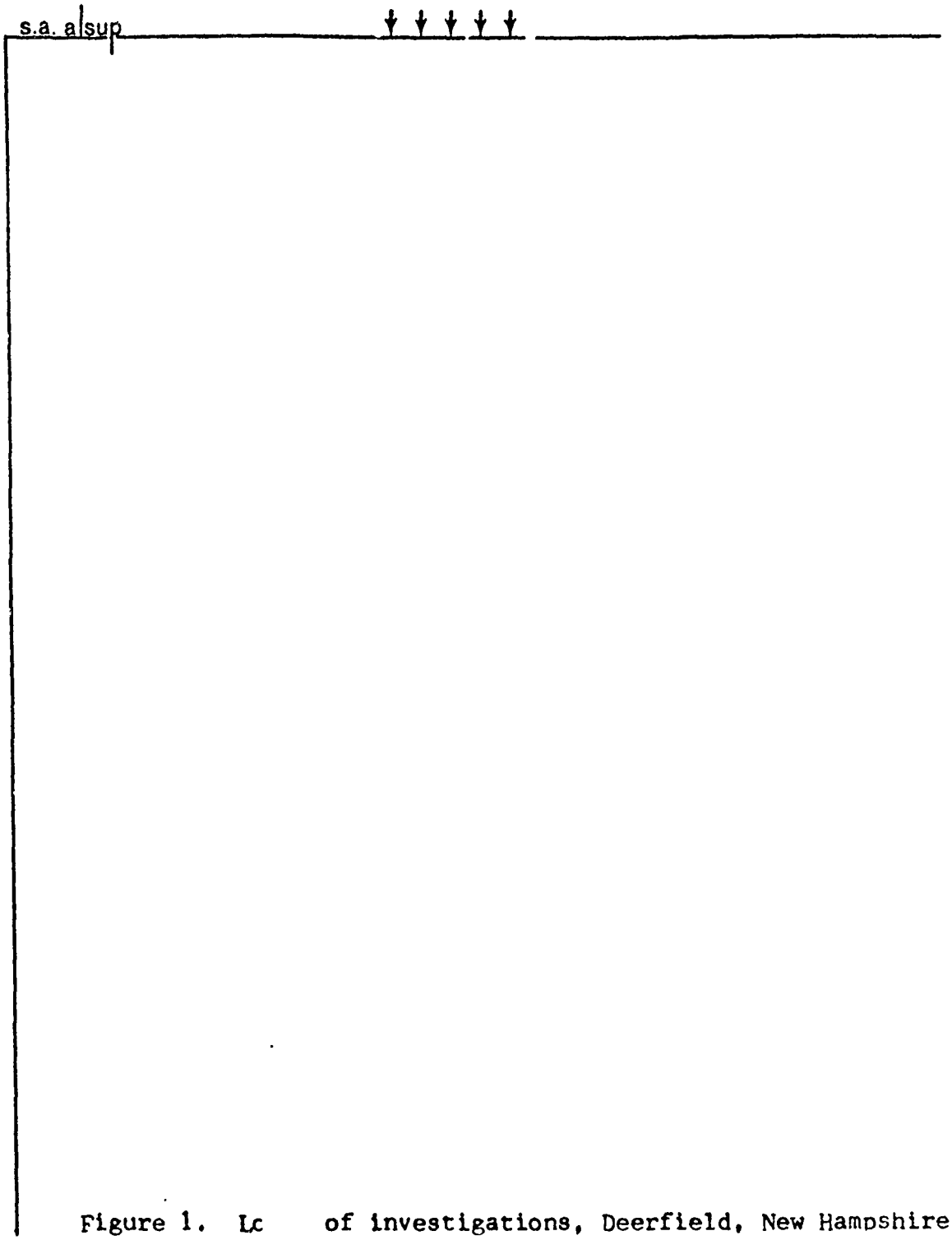


Figure 1. Lc of investigations, Deerfield, New Hampshire.

s.a. alsup

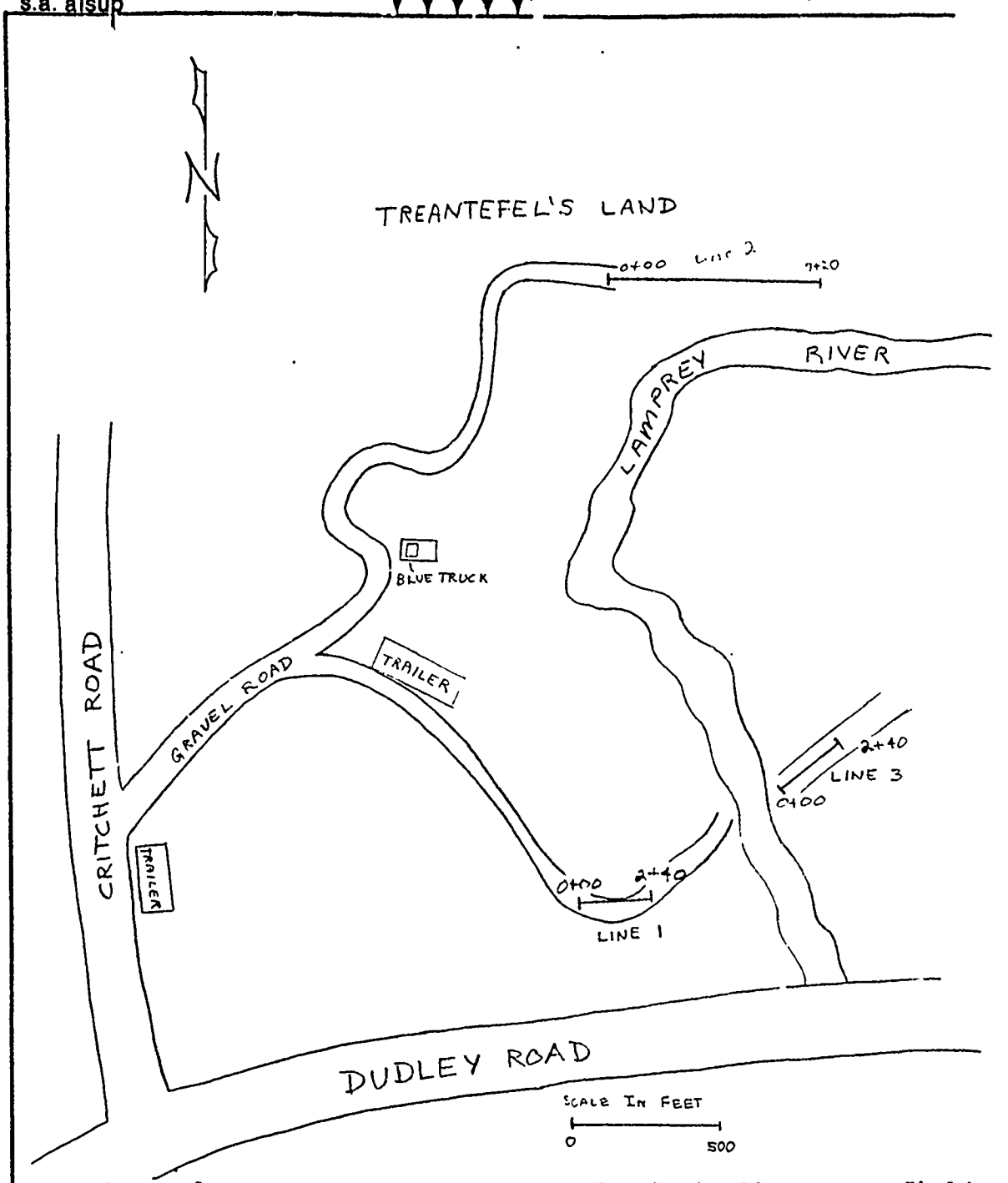


Figure 2. Approximate locations of seismic lines, Deerfield, New Hampshire refraction investigations.

File 79113E
July 13, 1979

s.a. alsup

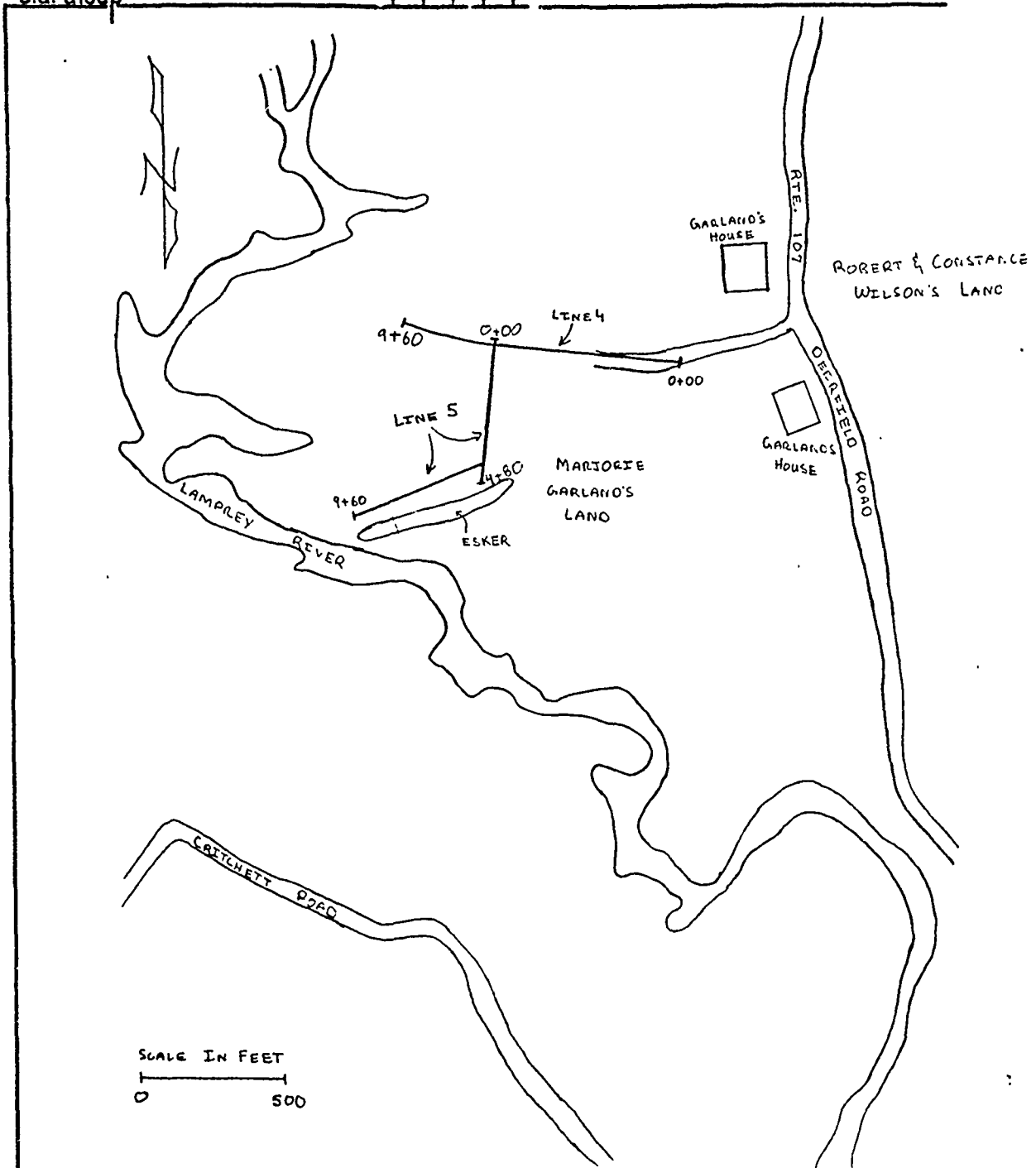


Figure 3. Approximate locations of seismic lines, Deerfield, New Hampshire refraction investigations.

to the base north of the esker. Quality of the resulting data is good, and no difficulties were encountered in field operations or in data analysis. Overall accuracy of the resulting data is anticipated to be within 10% of actual conditions in the subsurface (depth to inferfaces and compressional wave velocities.)

2.00 METHOD OF INVESTIGATION

The seismic refraction profiling was performed using an SIE Model RS-4 Refraction Seismograph with 12-element geophone spreads with 20-foot geophone spacings. The RS-4 provides 13 channel recording capability (12 data channels and 1 shot initiation time channel) on self-developing dry-write seismograms. Small explosive charges were used throughout the investigation as an energy source (1/8 lb 40% extra gel dynamite), with all charges detonated in stemmed and tamped holes approximately two feet deep. "Instadet" electric blasting caps were used to initiate each charge.

"End" shots were detonated at 10-foot spacings from the end of each spread, with "quarter" shots at 80 foot spacings along the typical spread. All spreads were "reversed" with shots at each end, and all shots were repeated as the spread was advanced along each line for analysis accuracy and data redundancy.

The seismic data were analyzed according to the standard "cross-overdistance" technique (distance from shot points to velocity takeover intersections determined from measurements of

compressional wave first arrival times), and all depths calculated from the data are assumed to represent conditions below shot points.

Refraction velocities are represented as the average of velocities measured from reversed profile data sets. Separation of units consisting of significantly different but consistent refraction velocity ranges is done by smoothed extrapolation laterally of conditions calculated at each shot point to adjacent shot point results.

3.00 RESULTS OF INVESTIGATIONS

Please note that all elevations are scaled from the topographic map provided by the Corps of Engineers, and may be in error by 10 feet or greater. Local topographic variations are included in the profiles presented. Depth below ground surface to changes in velocity and local topography are representative of the actual conditions within the limitations of the accuracy of the field observations.

Line 1 (Figure 4) is located in an open field. Unconsolidated, unsaturated, low density, granular soil, from STA 0+80 to STA 1+60 changes to slightly denser unconsolidated soil at STA 0+00 and 2+40. The soil, which ranges in thickness from 12 to 26 feet, lies directly on sound, competent bedrock. No groundwater saturation was indicated from the seismic refraction investigation beneath this profile.

Line 2 (Figure 5), located in a lightly wooded swamp, runs East-West and parallel to the Lamprey River. Seismic velocities

typical of groundwater saturation indicate an aquifer 2 to 11 feet beneath the surface, averaging 25 feet thick with a maximum thickness of 45 feet at STA 7+20. An impermeable mound of glacial till located from STA 4+00 to STA 5+60 constitutes an aquiclude at STA 4+80. A thin layer of unsaturated, low density, unconsolidated soil, approximately 2 feet thick, overlies the zone of groundwater saturation. Strongly weathered and fractured bedrock or very hard, dense glacial till is located 15 to 45 feet beneath the surface.

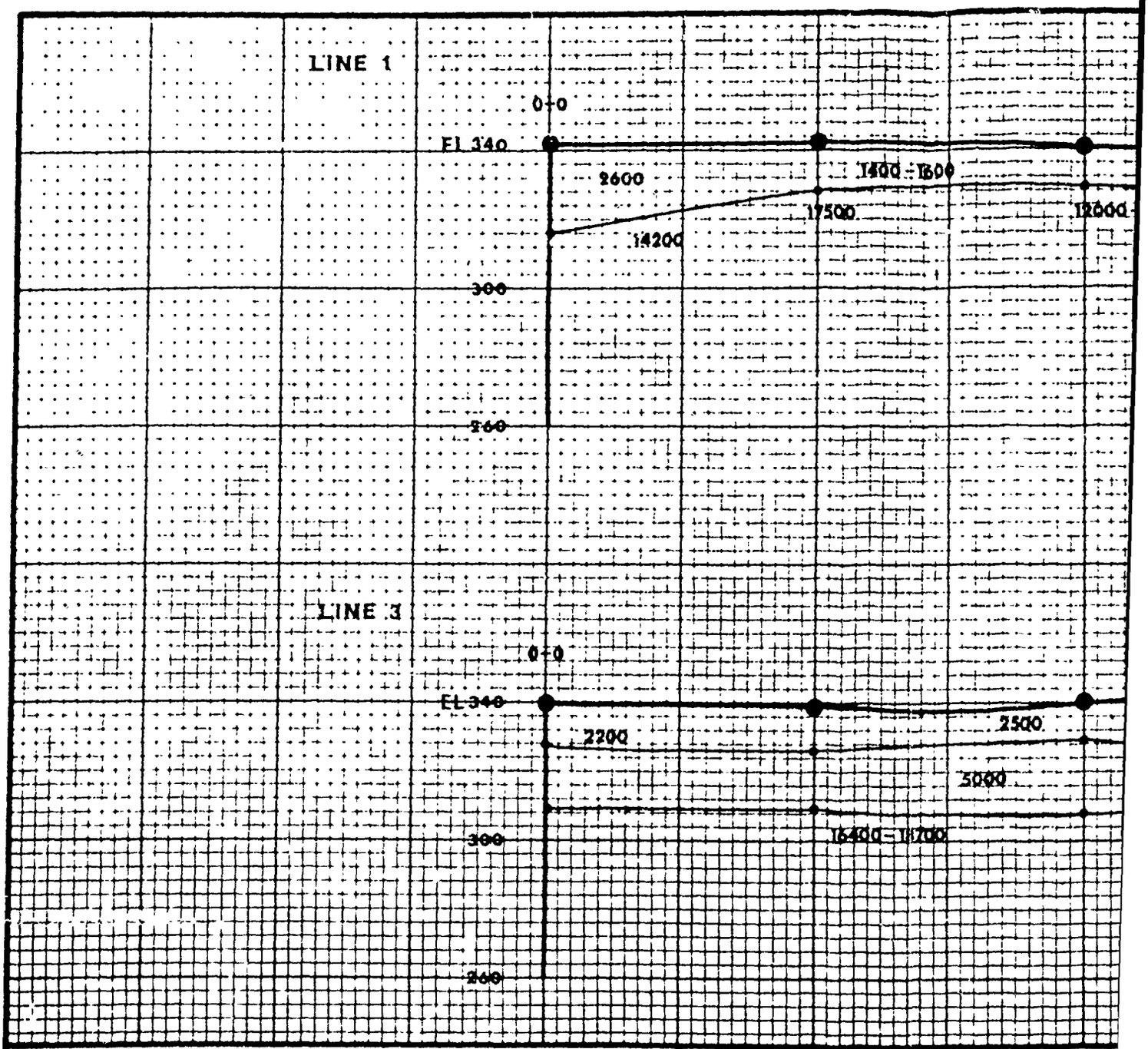
Line 3 (Figure 4) is located in an open field immediately to the East of Line 1. Unconsolidated, low to moderately dense soil, ranging approximately 10 to 20 feet beneath the surface lies over a zone of groundwater saturation. The aquifer, averaging 18 feet thick, pinches out at STA 2+40. Sound and competent bedrock lies under the aquifer.

Line 4 (Figure 6) is located to the North of Lines 1,2 and 3. Line 4 intersects Line 5 at STA 0+20 and Line 4 at STA 6+40 with the intersection showing similar subsurface conditions. The profile was run on a gravel road in a moderately dense wooded area. The three layer subsurface geology common in this groundwater study is present beneath this profile. The first layer is low to moderately dense, unconsolidated and granular soil, ranging approximately 8 to 20 feet in depth beneath the surface. An aquifer extends laterally across the entire cross-section. The groundwater saturated zone ranges in thickness from 15 to 50 feet and is 8 to 20 feet beneath the surface. The bedrock is weathered and fractured from STA 0+00 to STA 3+20. The bedrock gradually becomes more sound and competent from STA 3+20 to STA 9+60.

s.a. alsup

Line 5 (Figure 7) intersects Line 5 at STA 0+20 and Line 4 at STA 6+40 as noted above. The profile began in a gravel pit and terminated in a moderately dense wooded area. The end of the line was located at the base of an esker. This profile again shows a typical three layer sequence. The unconsolidated and granular soil, which ranges from5 to 14 feet in depth beneath the surface, varies from low to moderate density. A zone of groundwater saturation ranges in thickness from 9 to 45 feet. The maximum thickness of 45 feet is located at STA 2+40 and the minimum of 5 feet at STA 8+80. Seismic velocities indicate a mound of glacial till from STA 8+00 to STA 9+60. The aquifer and mound of glacial till overlie the bedrock which ranges from 35 to 55 feet in depth. The bedrock is fractured and weathered from STA 0+00 to STA 6+40, becoming more competent from STA 6+40 to 9+60.

(END)



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEOPHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

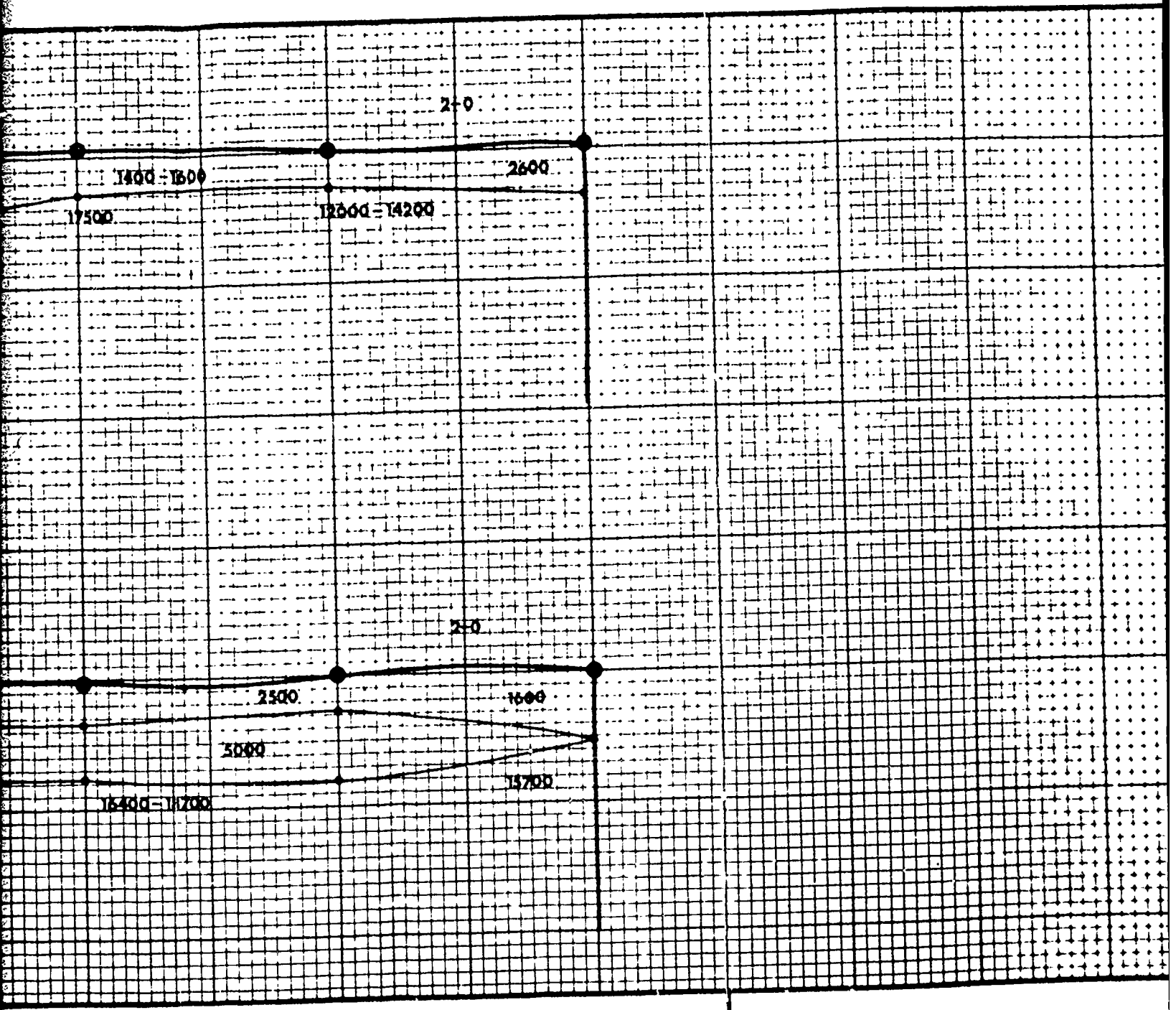
SCALE: VERTICAL 1" = 40'
HORIZONTAL

SHOT POINTS ——————

GEOPHONE SPREAD ——————

INFERRED SUBSURFACE —— VELOCITY BOUNDARIES

SEISMIC WAVE VELOCITIES — IN FEET PER SECOND



SCALE: VERTICAL 1" = 40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ———

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 4700 / 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ———

5/79KRM

DEERFIELD, NH

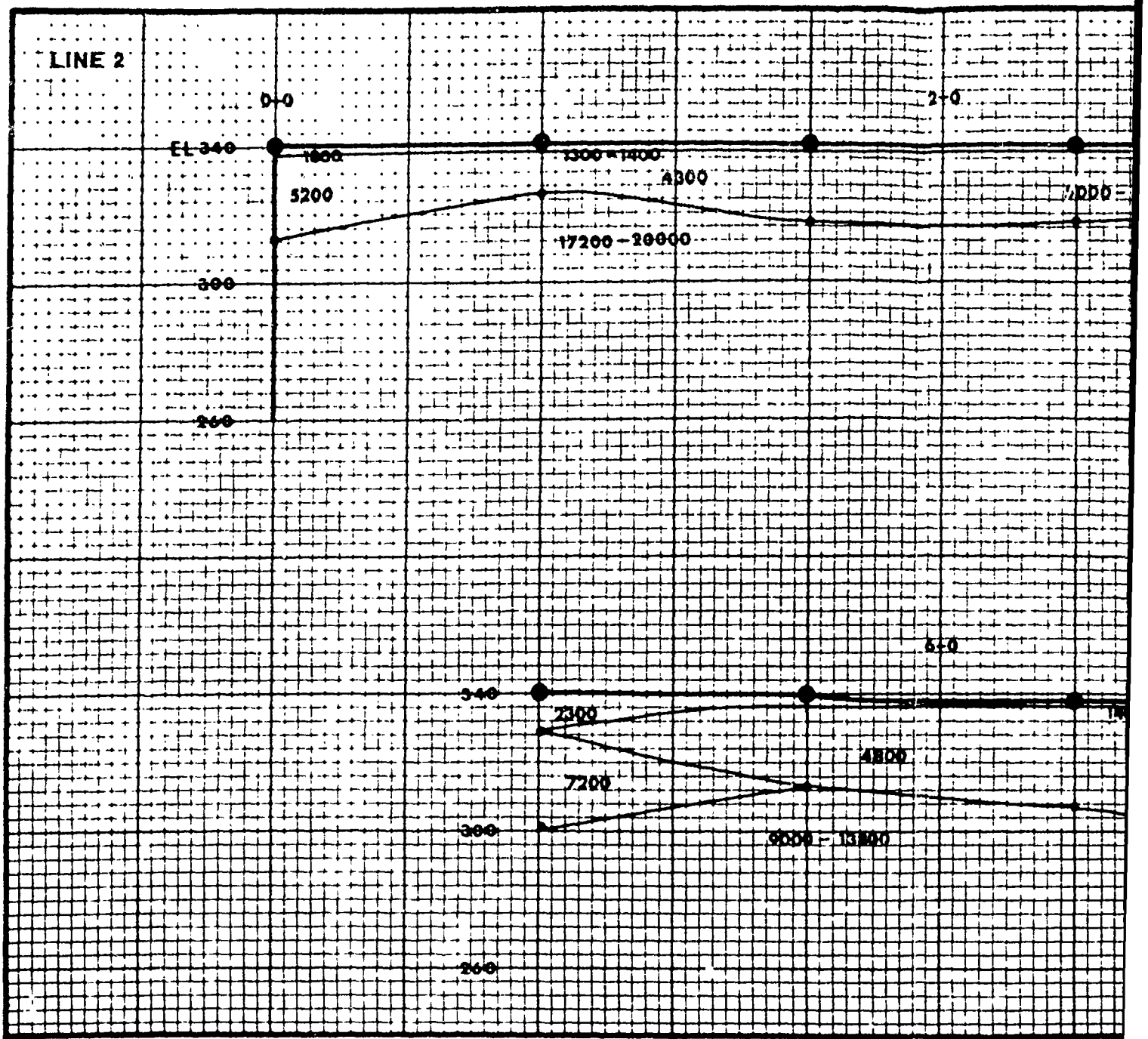
SEISMIC SURVEY PROFI

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S.A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113 E

FIGURE 2



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

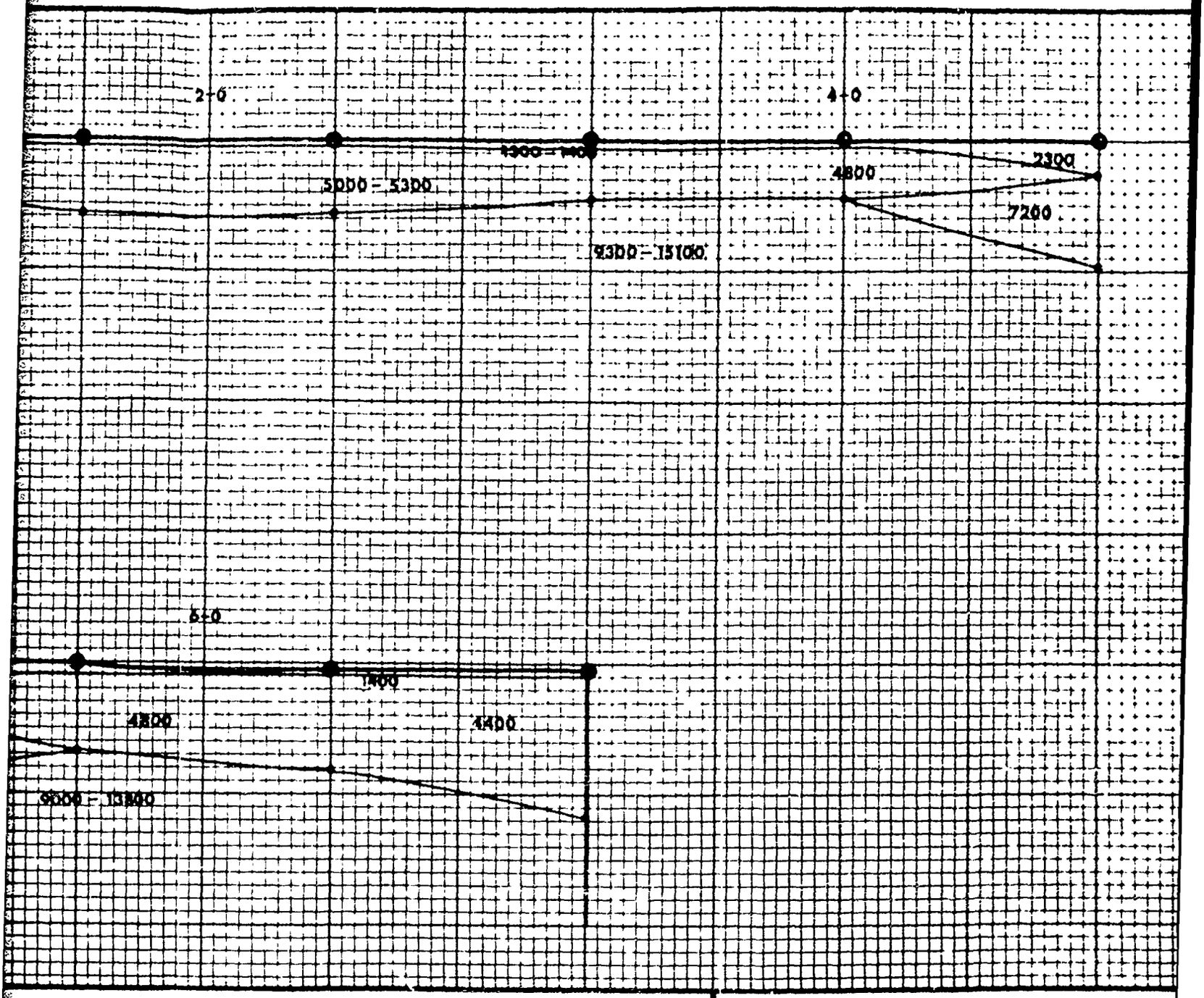
SCALE: VERTICAL 1" = 40'
HORIZONTAL

SHOT POINTS ——————

GEOPHONE SPREAD ——————

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——————

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——————



SCALE: VERTICAL 1"= 40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ———

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 4700 / 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ———

5/79KRM

DEERFIELD, NH

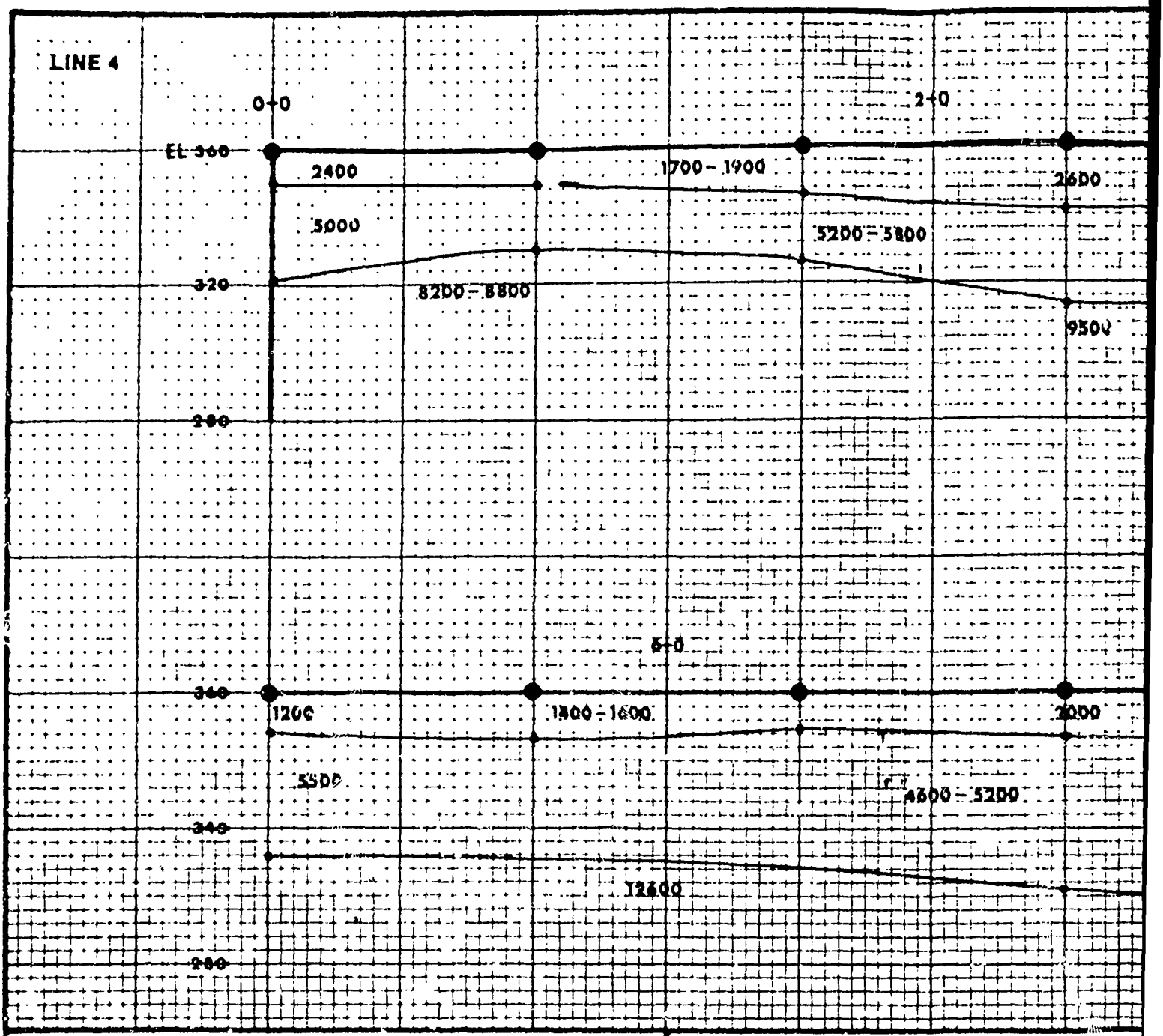
SEISMIC SURVEY PROFILE

GEOPHYSICAL SERVICES DEPARTMENT

S.A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113 E

FIGURE 2



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

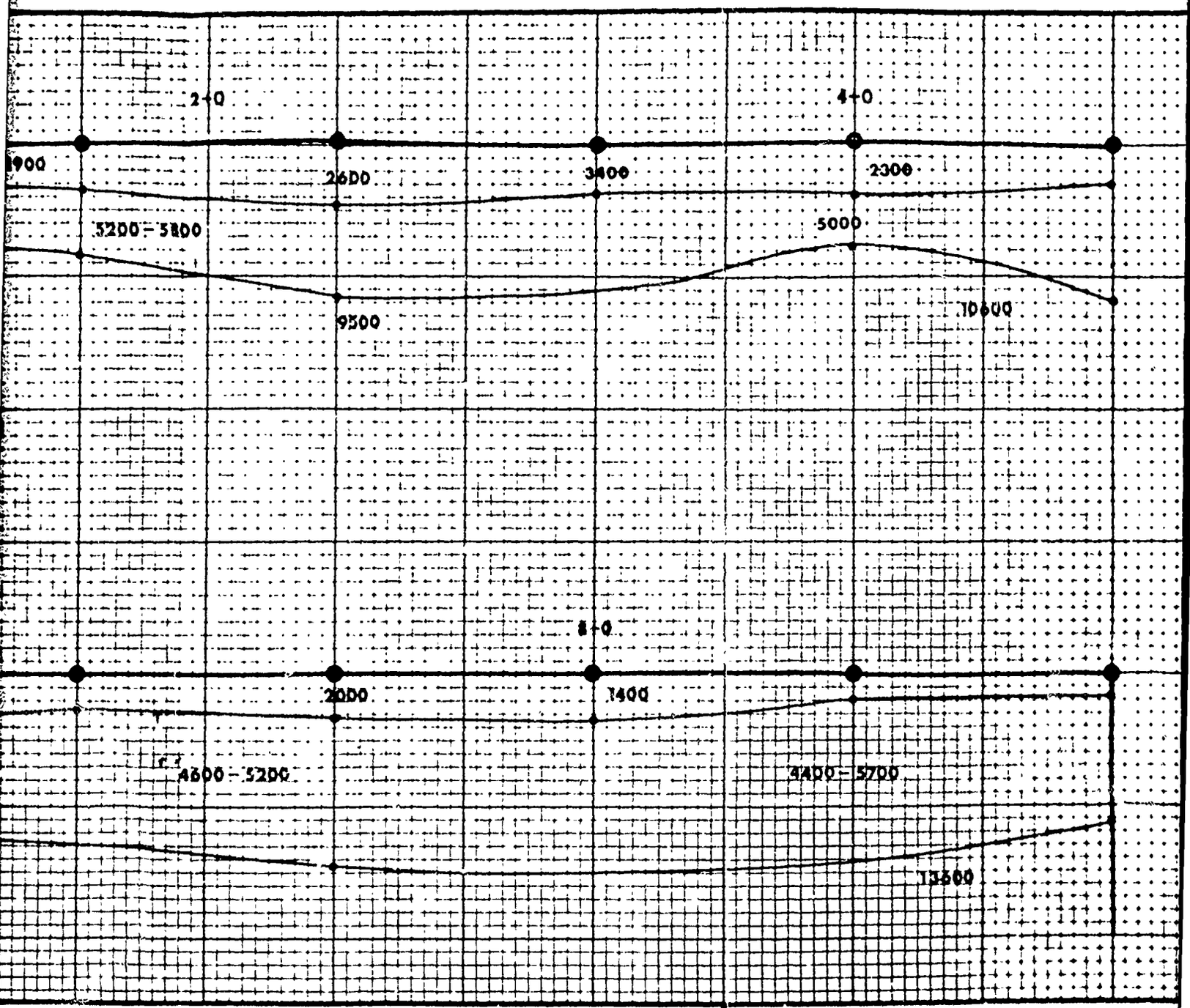
SCALE: VERTICAL 1" = 40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"= 40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ———

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 4700 / 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ———

5/79KRM

DEERF[illegible]D. NH

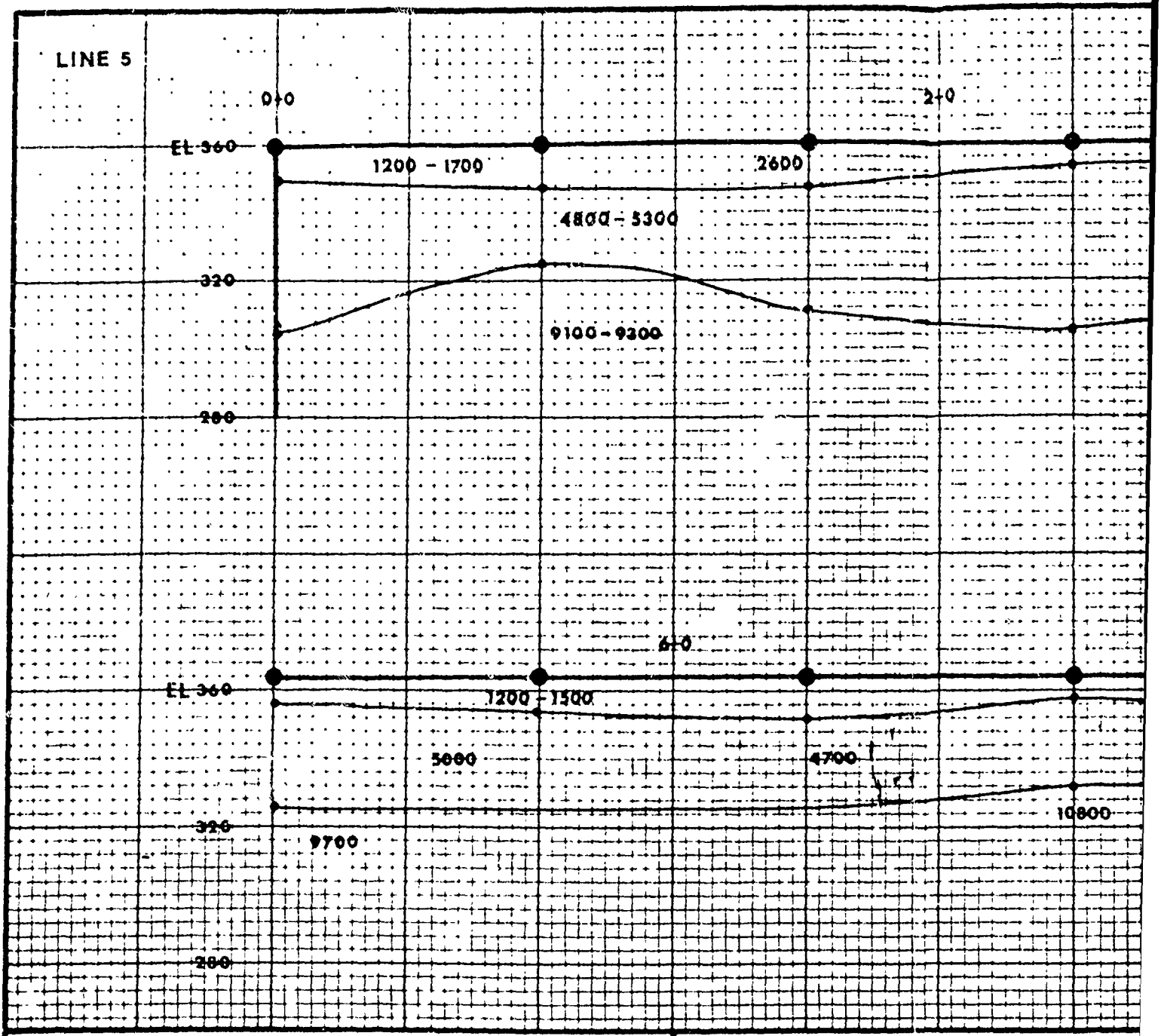
SEISMIC SURVEY PROFIL

GEOPHYSICAL SERVICES DEPARTM

S.A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113E

FIGURE 2



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

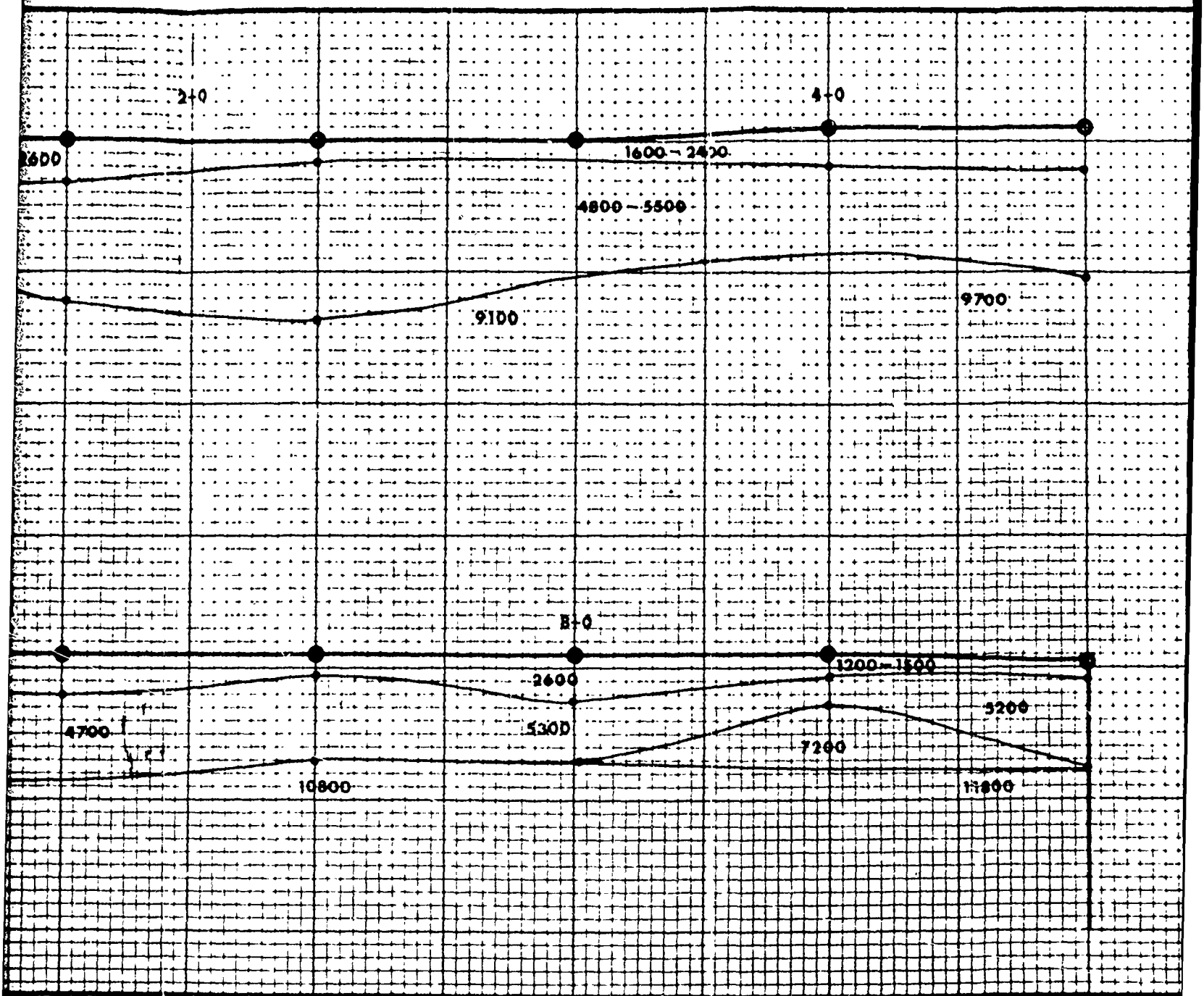
SCALE: VERTICAL 1" = 40'
HORIZONTAL

SHOT POINTS ——————

GEOPHONE SPREAD ——————

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——————

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——————



SCALE: VERTICAL 1" = 40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ———

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 4700 / 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ———

5/79KRM

DEERFIELD, NH

SEISMIC SURVEY PROFILE

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S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113E

FIGURE 7

s.a. alsup

SEISMIC REFRACTION INVESTIGATIONS
FREMONT, NEW HAMPSHIRE

Prepared For: U.S. Army Corps of Engineers
New England Division
Waltham, Massachusetts

File 79113D
June 5, 1979

s.a. alsup

SEISMIC REFRACTION INVESTIGATIONS
GROUNDWATER STUDIES
FREMONT, NEW HAMPSHIRE

1.00 INTRODUCTION

This report presents the results of seismic refraction investigations conducted in Fremont, New Hampshire for the U.S. Army Corps of Engineers, New England Division by S.A. Alsup and Associates of Newton, Massachusetts. The location of the site investigated is shown in Figure 1. All work was performed in accordance with the requirements of Contract DACW33-79-C-0025. The results reported here are based upon data collected in the field on May 29, 30 and 31, 1979.

The purpose of the investigation was to determine the depth to the groundwater table and aquifer thickness in the area investigated as inferred from seismic refraction data beneath profile lines specified by the Corps of Engineers. Sketch layouts of the lines specified are shown in Figures 2 and 3. All profiles specified were completed during the investigation, with the total of four lines totaling 4,140 linear feet.

Profiles 1, 2, and 3 were located in an open field. Profile 4 followed a dirt road in a moderately dense wooded area. Quality of the resulting data is good, and no difficulties were encountered in the field operations or in data analysis. Overall accuracy of the resulting data is anticipated to be within 10% of actual conditions in the subsurface (depth to interfaces and compressional wave velocities).

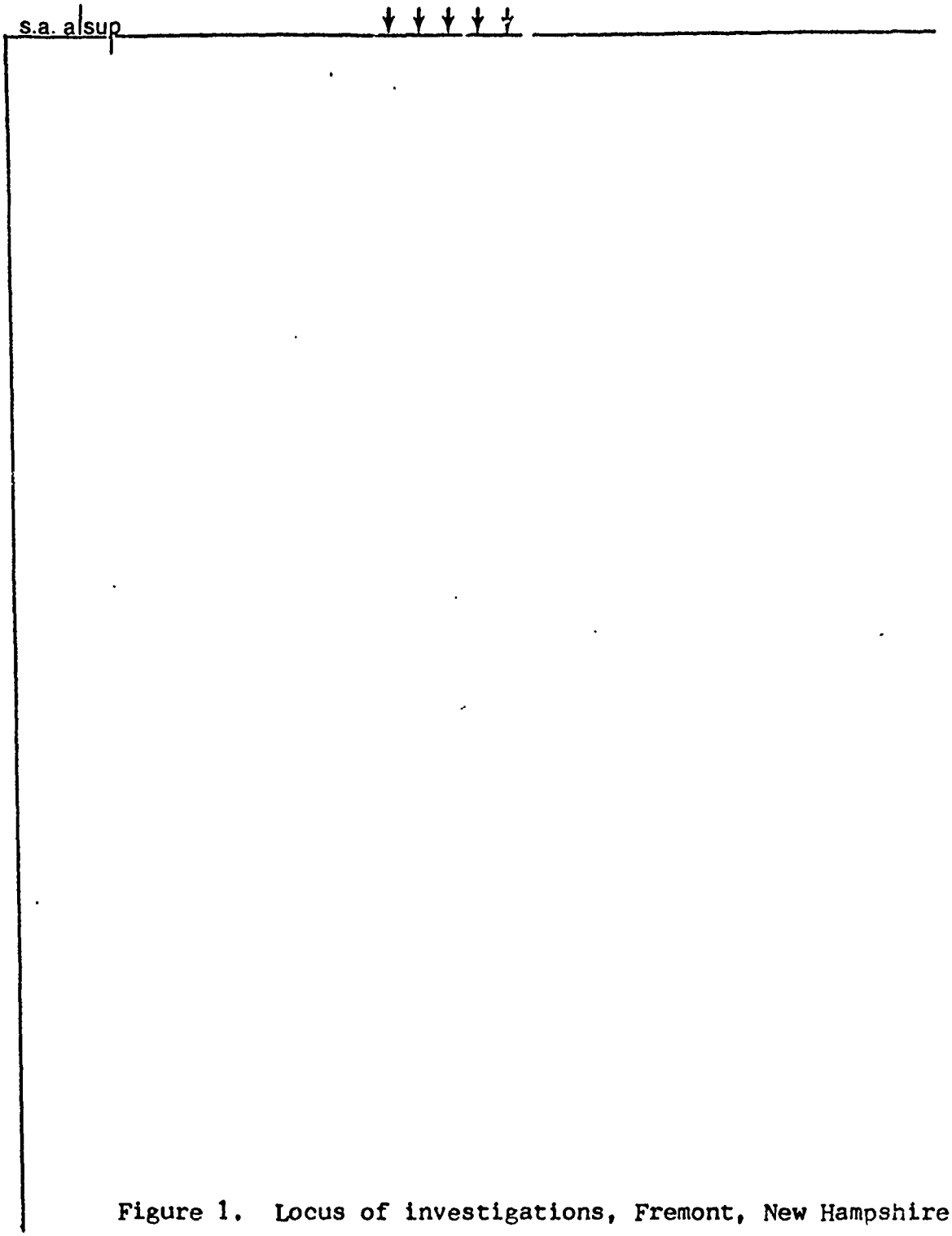


Figure 1. Locus of investigations, Fremont, New Hampshire.

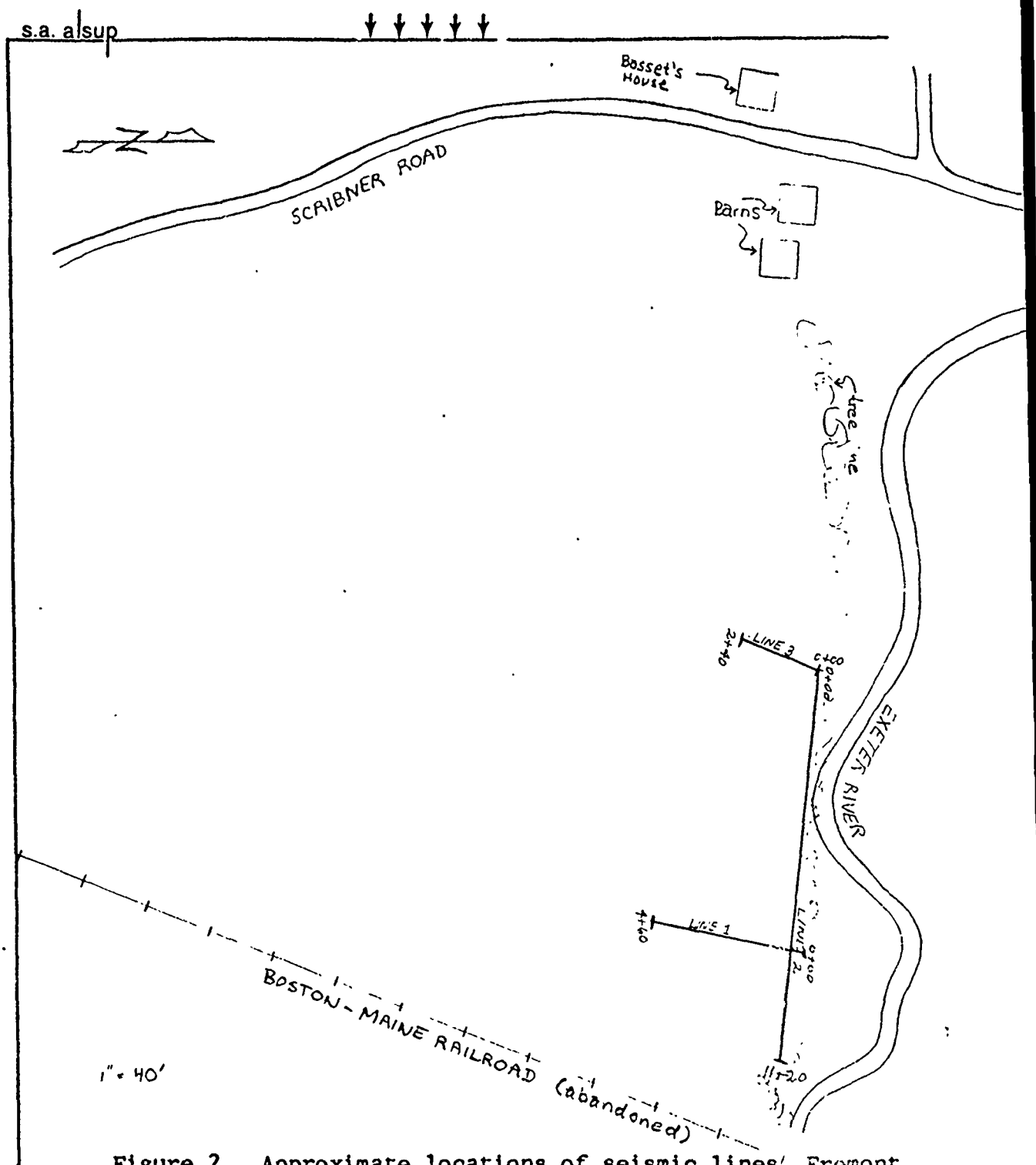


Figure 2. Approximate locations of seismic lines, Fremont, New Hampshire refraction investigations.

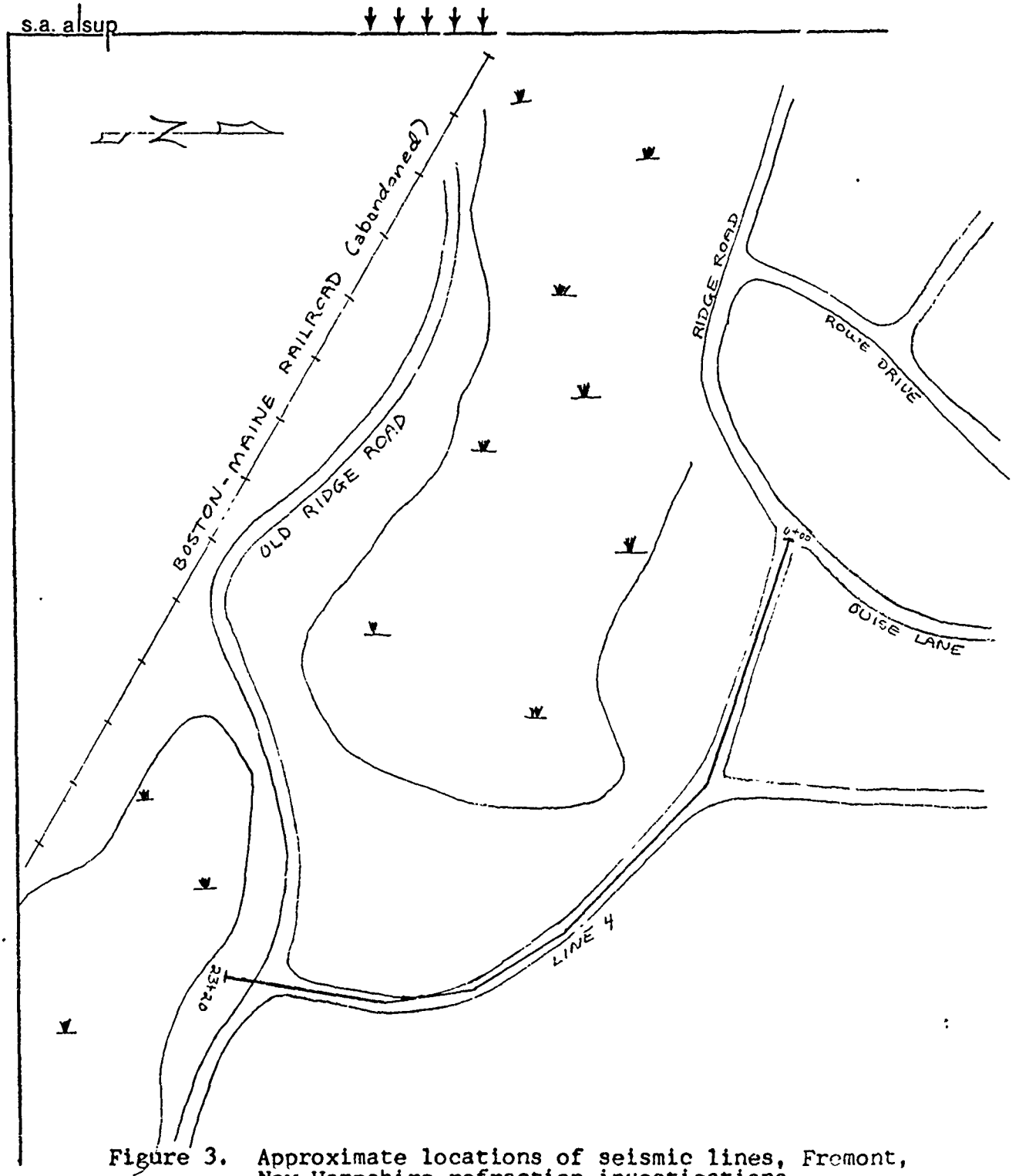


Figure 3. Approximate locations of seismic lines, Fremont, New Hampshire refraction investigations.

2.00 METHOD OF INVESTIGATION

The seismic refraction profiling was performed using an SIE Model RS-4 Refraction Seismograph with 12-element geophone spreads with 20-foot geophone spacings. The RS-4 provides 13 channel recording capability (12 data channels and 1 shot initiation time channel) on self-developing dry-write seismograms. Small explosive charges were used throughout the investigation as an energy source (1/8 lb 40% extra gel dynamite), with all charges detonated in stemmed and tamped holes approximately two feet deep. "Instadet" electric blasting caps were used to initiate each charge.

"End" shots were detonated at 10-foot spacing from the end of each spread, with "quarter" shots at 80-foot spacings along the typical spread. All spreads were "reversed" with shots at each end, and all end shots were repeated as the spread was advanced along each line for analysis accuracy and data redundancy.

The seismic data were analyzed according to the standard "cross-over distance" technique (distances from shot points to velocity takeover intersections determined from measurements of compressional wave first arrival times), and all depths calculated from the data are assumed to represent conditions below shot points.

Refraction velocities are represented as the average of velocities measured from reversed profile data sets. Separation of units consisting of significantly different but consistent refraction velocity ranges is done by smoothed extrapolation laterally of conditions calculated at each shot point to adjacent shot point results.

3.00 RESULTS OF INVESTIGATIONS

Please note that all elevations are scaled from the topographic map provided by the Corps of Engineers, and may be in error by 10 feet or greater. Local topographic variations are included in the profiles presented. D[illegible] below ground surface to changes in velocity and local topography are representative of the actual conditions within the limitations of the accuracy of the field observations.

Line 1 (Figure 4) is located in an open grassy field. Unconsolidated, low density, granular soil at STA 0+00 changes gradually to denser unconsolidated soil (represented as a slight increase in soil velocities) from STA 1+60 to 4+60. The soil lies directly on bedrock from STA 1+60 to 2+40, and on groundwater pockets from STA 0+00 to 1+60 and STA 2+40 to 4+60. The soil ranges in thickness from 5 to 22 feet, with the thickest section (22 feet) at STA 2+00. The two groundwater pockets, indicated approximately 5 to 25 feet in depth below the surface, range in thickness from 15 to 20 feet, with apparent pinch-outs at STA 1+60, 2+40, and 4+60. High velocities in the soil indicate that clayey, impermeable zones may be present, (STA 1+60 to 2+40), causing a lack of water communication between the two pockets of water and the highly variable groundwater table boundary. Both the soil and groundwater saturation lie on bedrock located about 25 feet beneath the surface. Bedrock velocities indicate sound and competent bedrock.

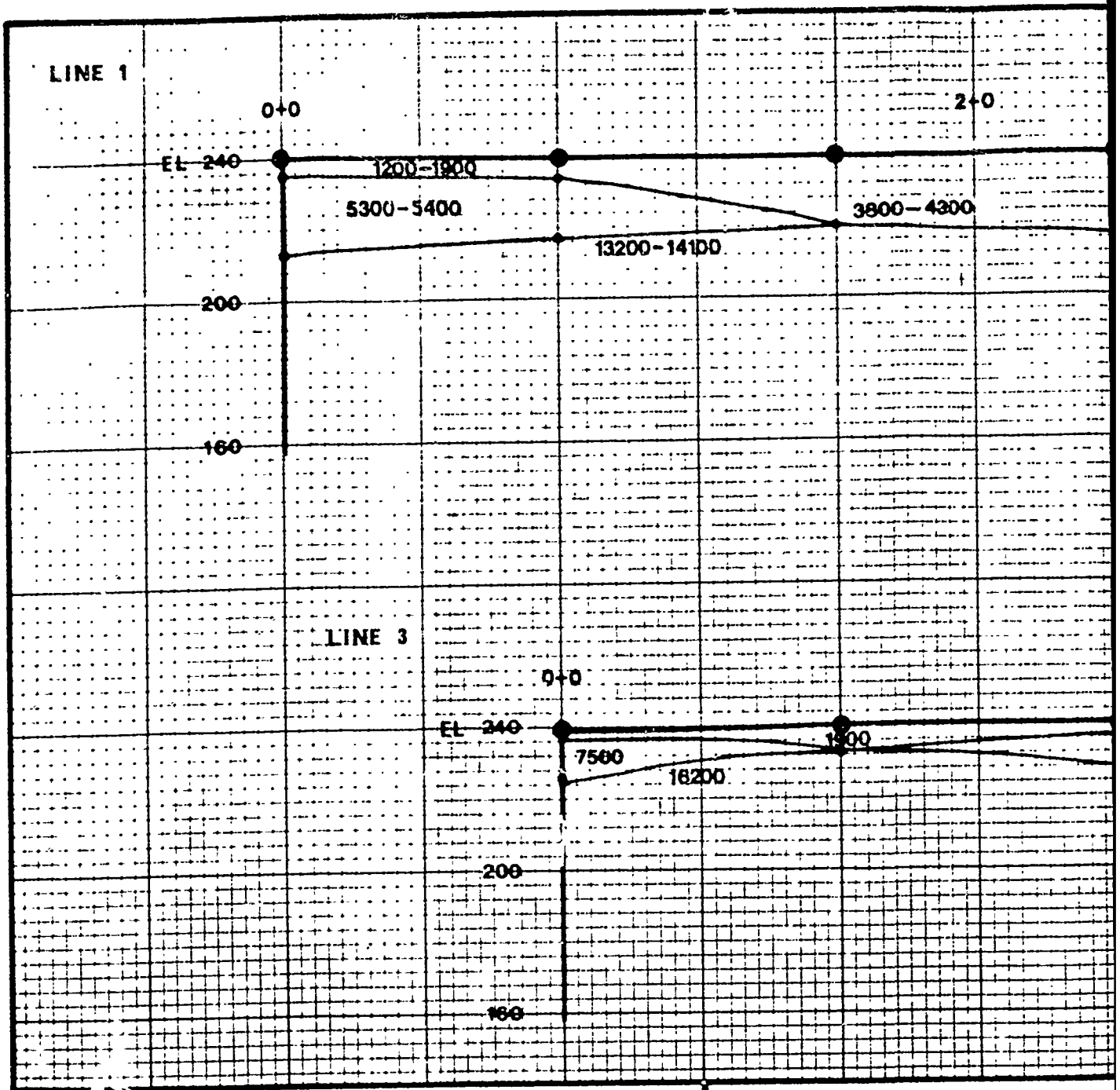
Line 2 (Figure 5) crosses Line 1 at 1+40 and 2+00 in a flat, open field, with the intersection showing similar subsurface conditions extending laterally (unconsolidated granular soil deposits with a water saturated zone over bedrock).

Unsaturated, unconsolidated, low density soil, about 4 to 12 feet thick, lies immediately under the surface. A mound of glacial till, about 7 to 14 feet thick is indicated 3 to 10 feet beneath the surface from STA 0+00 to 1+60, where it pinches out. A zone of groundwater saturation is present from STA 4+80 to 9+60. It ranges in thickness from 8 to 18 feet, with the maximum thickness of 18 feet located from STA 7+20 to 8+40. The bedrock depth varies from 6 to 25 feet beneath the surface. Refraction velocities in the bedrock between STA 1+60 to 4+80 indicate weathered or fractured bedrock, with the rock becoming slightly more competent from STA 4+80 to 11+20.

Line 3 (Figure 4) crosses Line 2 at 2;0+00 and 3;0+00, with the interesction again showing similar subsurface conditions. Unconsolidated, low density, unsaturated soil, approximately 3 to 8 feet thick, overlies glacial till and a water saturated zone. The soil increases slightly in density from North to South along the profile. A mound of glacial till is present from STA 0+00 to 0+80, where it pinches out. The maximum thickness of 12 feet is located at STA 0+00. A pocket of groundwater is is indicated from STA 0+80 to 2+40, ranging in thickness from 0 to 10 feet, is typically about 5 feet below ground surface. The maxumum thickness of the groundwater pocket is 10 feet, at STA 1+60. The velocity in the water saturated zone is slightly higher than typically found in groundwater, possibly indicating the presence of clay, or water in a very fine grained granular material. The bedrock depth varies from 8 to 13 feet below the surface, and the refraction velocities indicate sound, competent rock.

Line 4 (Figure 6 and 7) followed a dirt road through a moderately wooded area. Local topography varied from 0 to about

5 feet along the refraction spreads. A groundwater saturated zone, ranging in thickness from 0 to 30 feet is approximately 4 to 20 feet below ground surface. The maximum water saturated thickness of about 30 feet is located from STA 11+60 to 13+60 and STA 19+20 to 21+80. Average velocities for water saturation are encountered throughout the zone except from STA 12+40 to 13+20, where higher than average velocities are indicated. Clay or other fine-grained materials may cause the elevated velocities. The unconsolidated, unsaturated, granular soil varies in density throughout the profile as indicated by the variable velocities. Velocities showing competent bedrock are indicated throughout the profile. Unsaturated soil lies directly on the bedrock from STA 4+00 to 5+60, STA 16+80 to 18+40 and STA 22+40 to 23+20. Groundwater saturation is indicated above the bedrock for the remainder of the profile. Bedrock valleys and knolls cause a range of depths beneath the surface of 12 to 45 feet.



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDIT-IONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

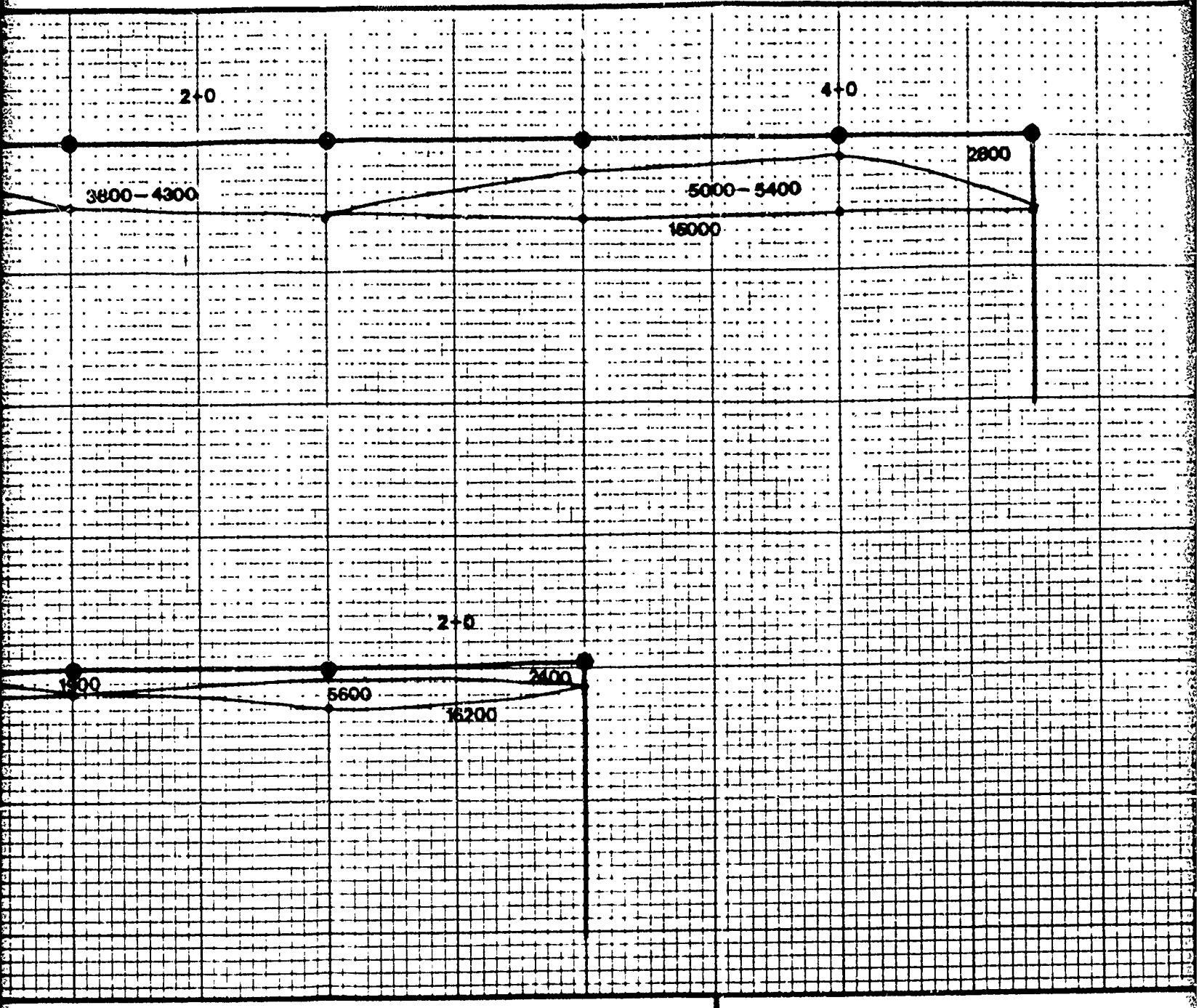
SCALE: VERTICAL 1"=4
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE —
VELOCITY BOUNDARIES

SEISMIC WAVE VELOCITIES
IN FEET PER SECOND



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ———

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 4700 / 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ———

5/79KRM

FREMONT, NH

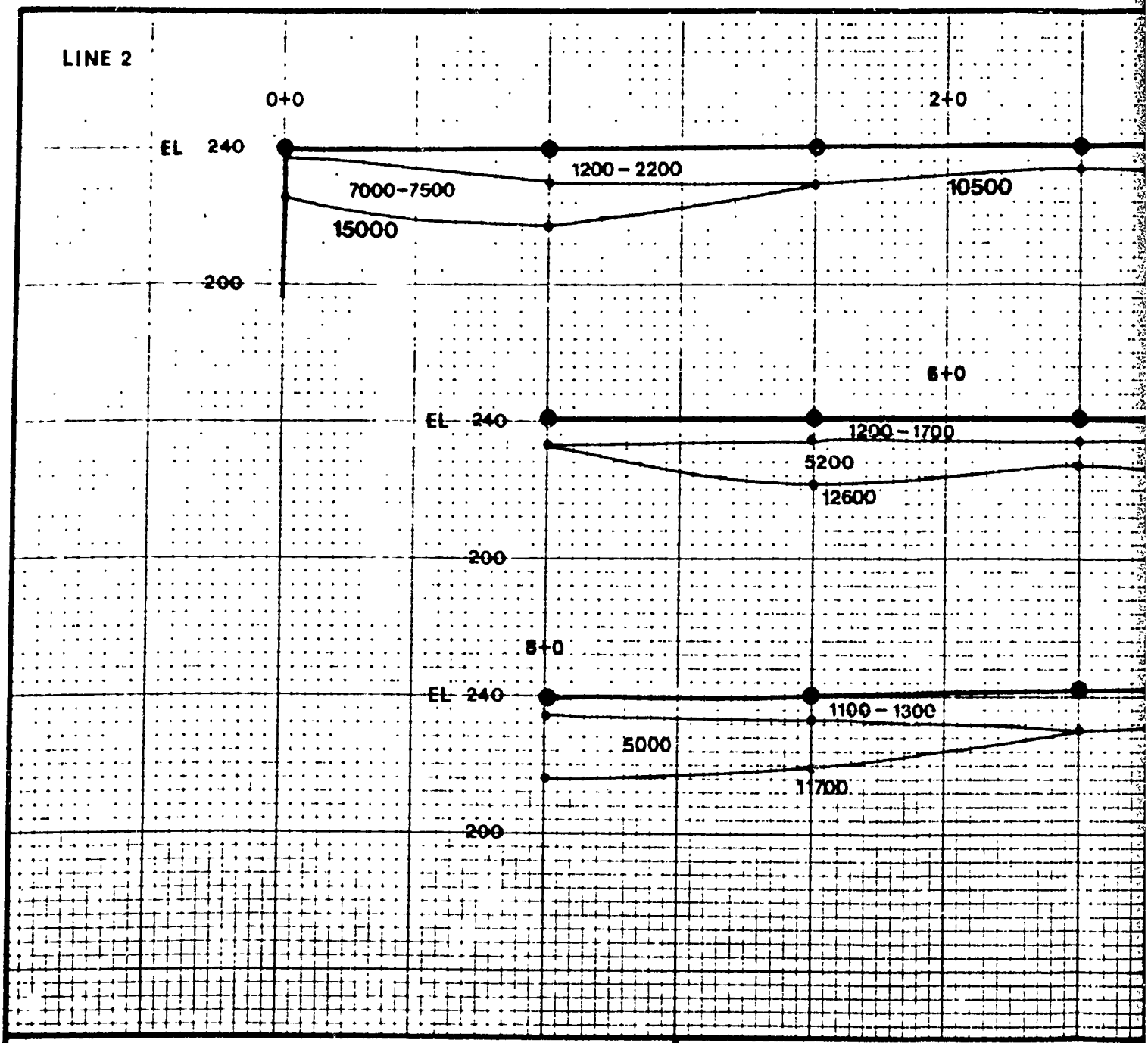
SEISMIC SURVEY PROFILE

GEOPHYSICAL SERVICES DEPARTME

S A ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113D

FIGURE 4



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

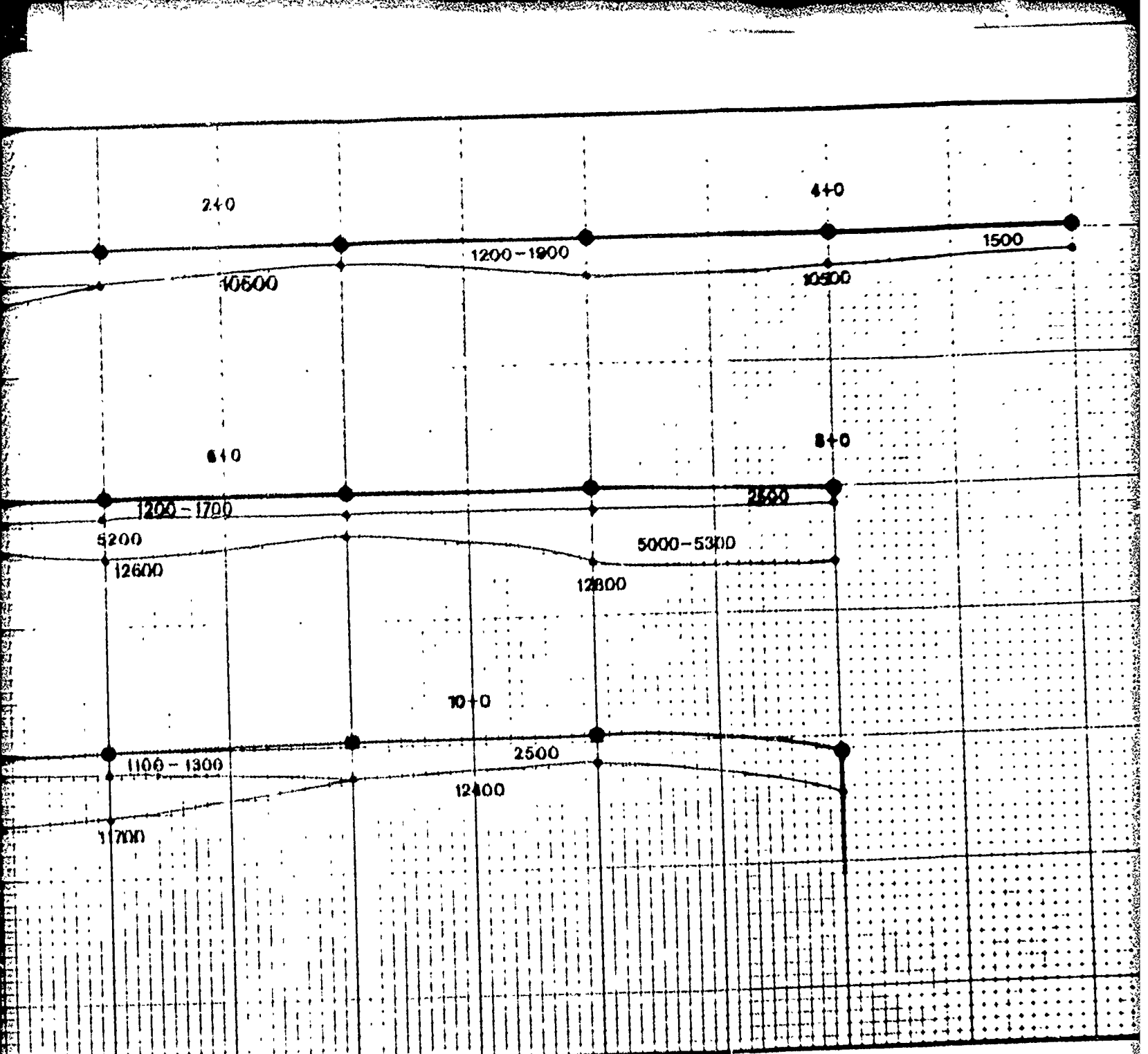
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS

GEOPHONE SPREAD

INFERRED SUBSURFACE VELOCITY BOUNDARIES

SEISMIC WAVE VELOCITIES IN FEET PER SECOND



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ——— 4700

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND

5 79 KRM

FREEMONT, NH

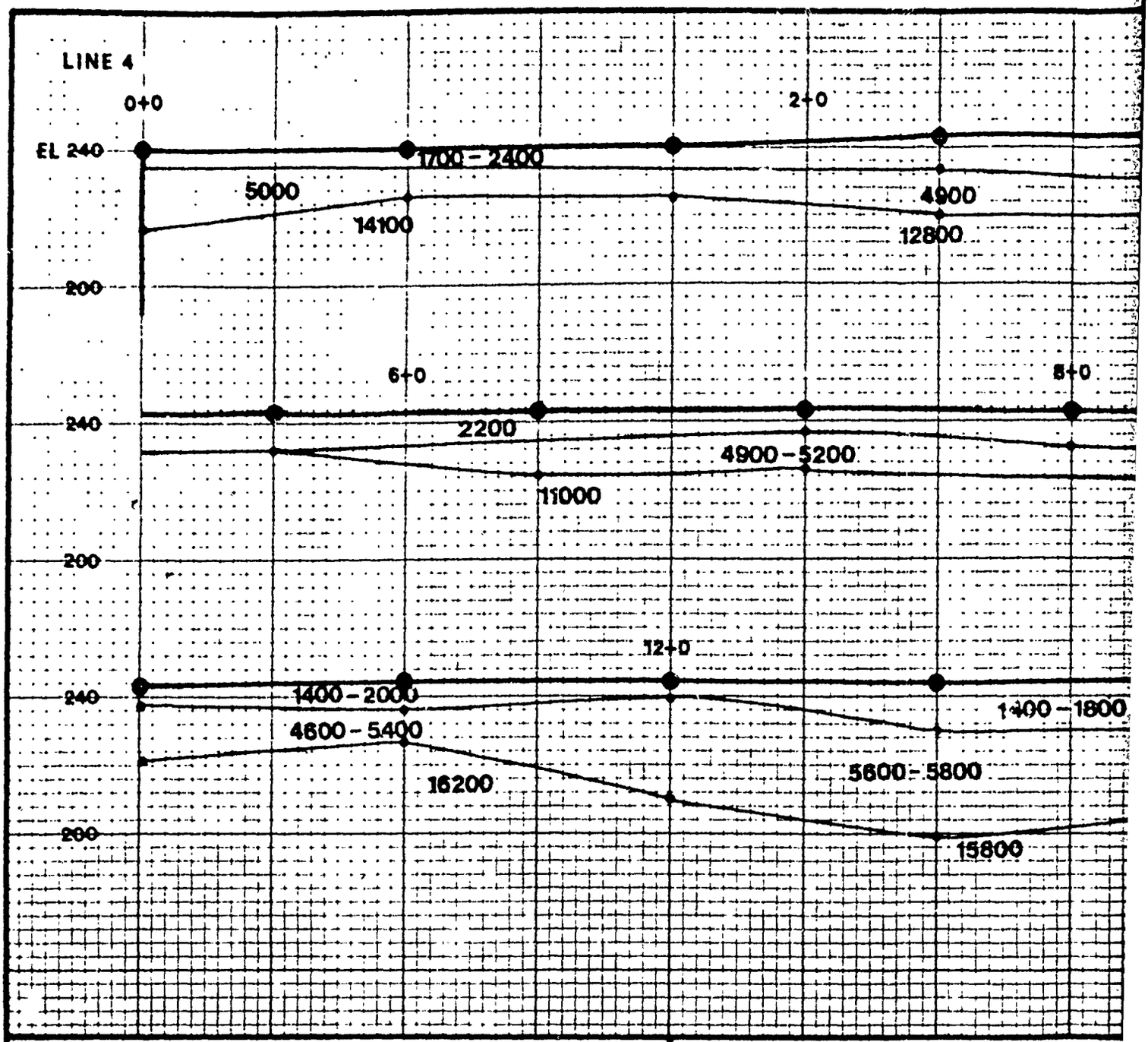
SEISMIC SURVEY PROF

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S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO 79113D

FIGURE 2



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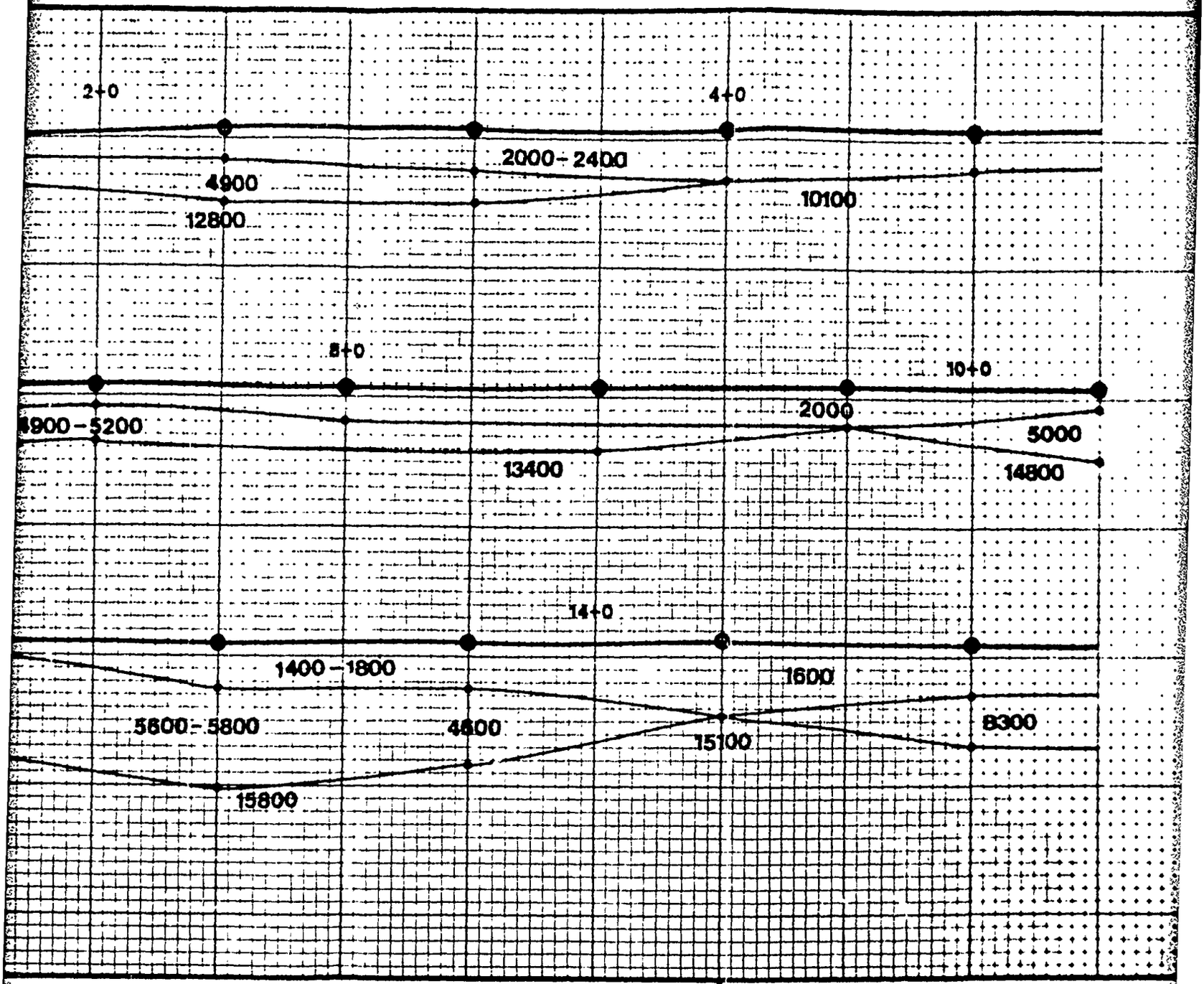
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS

GEOPHONE SPREAD

INFERRED SUBSURFACE VELOCITY BOUNDARIES

SEISMIC WAVE VELOCITIES IN FEET PER SECOND



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS —— 1600

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES —— 4700 / 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND

5/79 KRM

FREMONT, NH

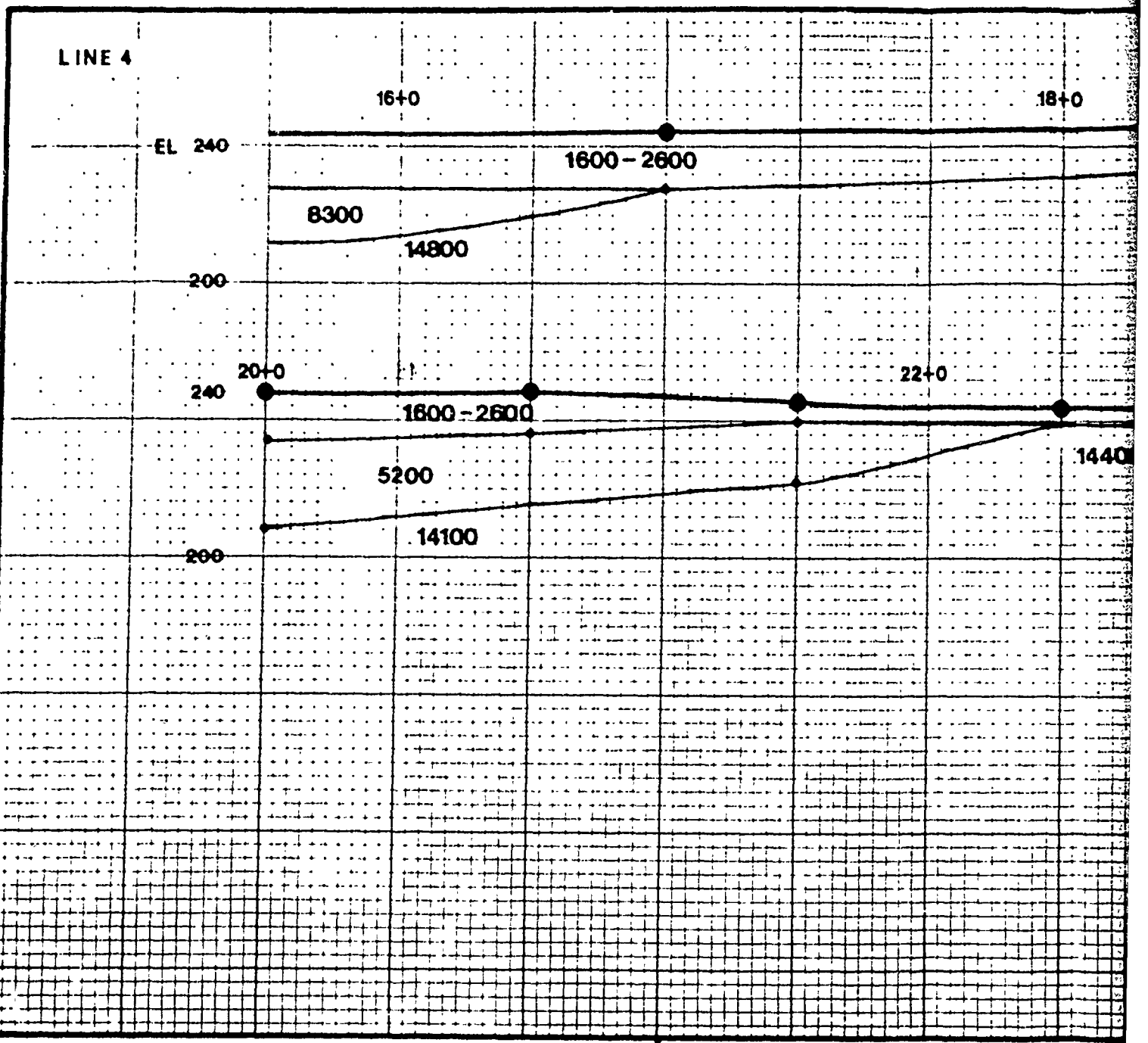
SEISMIC SURVEY PROFIL

GEOPHYSICAL SERVICES DEPARTM

S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113D

FIGURE 2



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

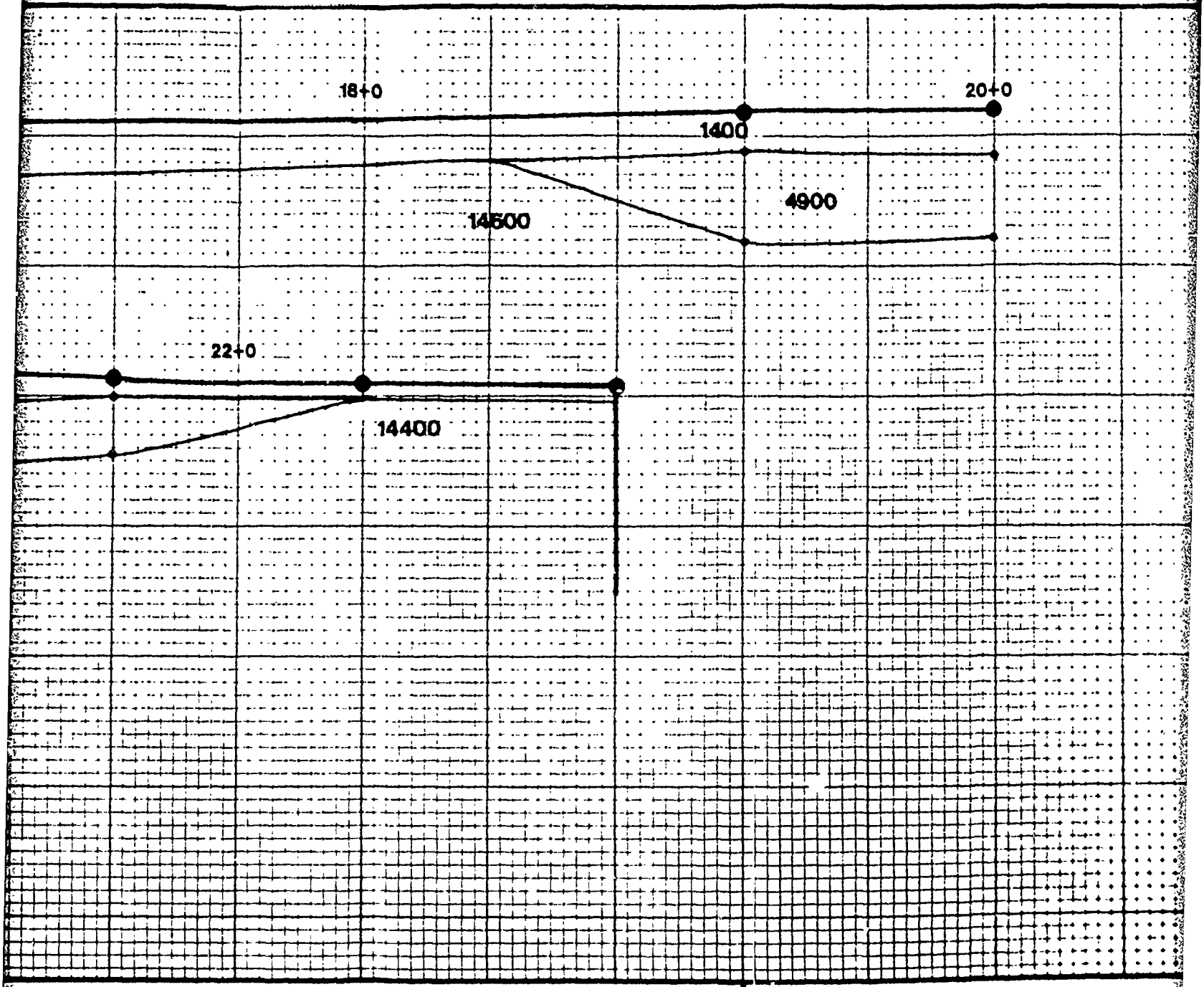
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS
GEOPHONE SPREAD
INFERRED SUBSURFACE VELOCITY BOUNDARIES
SEISMIC WAVE VELOCITIES IN FEET PER SECOND

1600
4700
10200

5/79 KRM

FREMONT, NH

SEISMIC SURVEY PROFI

GEOPHYSICAL SERVICES DEPART

GOLDBERG-ZOINO AND ASSOCIAT
SOIL AND FOUNDATION ENGINEER
NEWTON UPPER FALLS, MASS

FILE NO. 79113D

FIGURE 2

s.a. alsup

SEISMIC REFRACTION INVESTIGATIONS

ROCHESTER, NEW HAMPSHIRE

Prepared For: U.S. Army Corps of Engineers
New England Division
Waltham, Massachusetts

File 79113B
May 12, 1979

s.a. alsup

SEISMIC REFRACTION INVESTIGATIONS
ROCHESTER, NEW HAMPSHIRE

1.00 INTRODUCTION

This report presents the results of seismic refraction investigations in Rochester, New Hampshire conducted for the U.S. Army Corps of Engineers, New England Division by S.A. Alsup & Associates of Newton, Massachusetts. Locus of the investigations is shown in Figure 1. All work was performed in accordance with the requirements of Contract DACW33-79-C-0025. Information reported here is based upon data collected in the field on April 25 and 26, and May 1 and 2, 1979. Preliminary data results were provided to the Corps of Engineers for boring program plans by telephone.

The purpose of the investigations was to determine depth to the groundwater table and aquifer thickness as inferred from the seismic refraction data beneath profile lines specified by the Corps of Engineers. Sketch locus of the lines specified are shown in Figures 2 and 3. Six lines totaling 6220 linear feet of refraction profiling were accomplished during the effort, completing all alignments identified by the Corps for profiling.

2.00 METHOD OF INVESTIGATION

The seismic refraction profiling was performed using an SIE Model RS-4 Refraction Seismograph with 12-element geophone spreads at 20-foot inter-geophone spacing. The RS-4 provides 13 channel recording capability (12 data channels and 1 shot

File 79113B
May 11, 1979

s.a. alsup

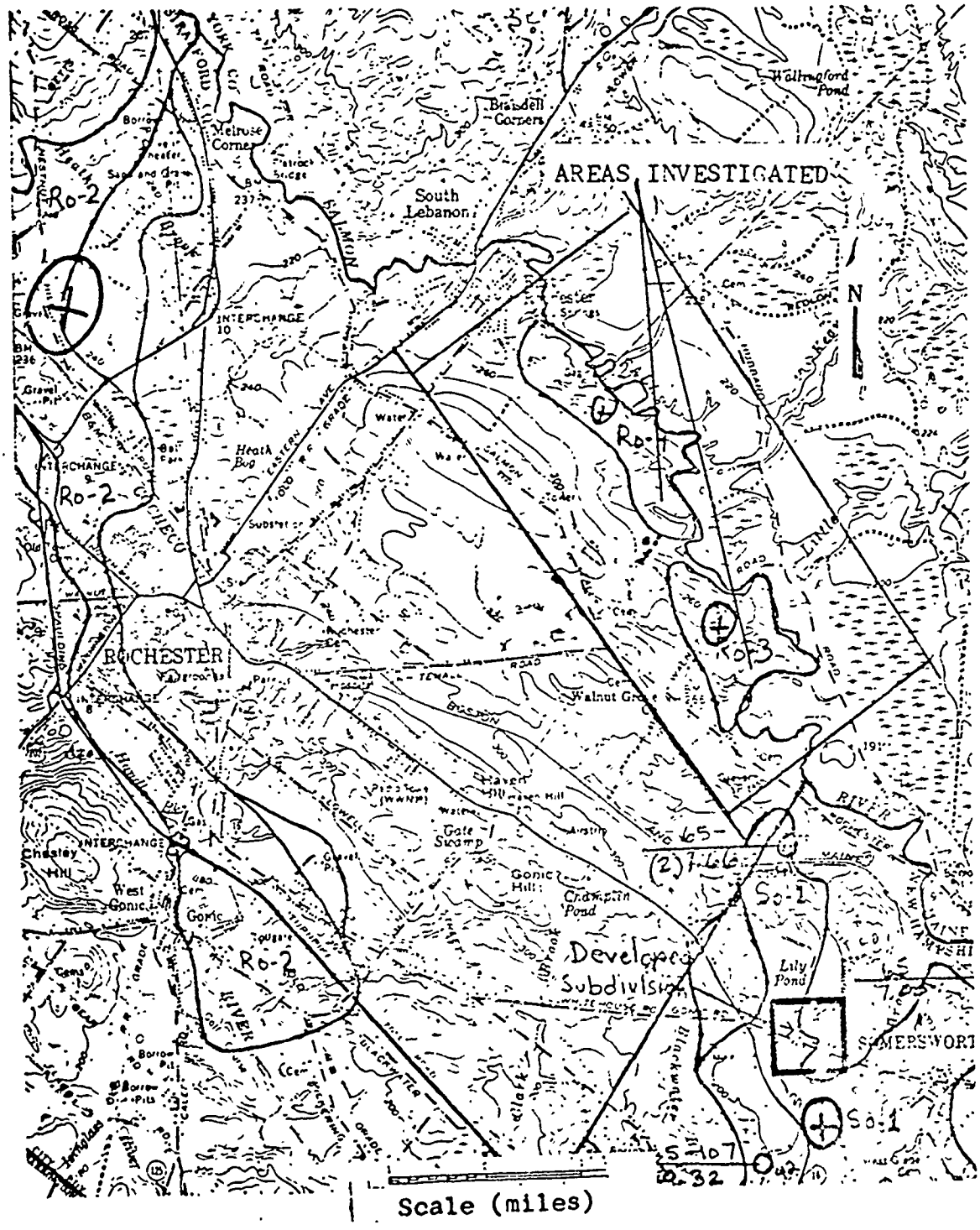


Figure 1. Locus of Investigations, Rochester, New Hampshire

s.a. alsup

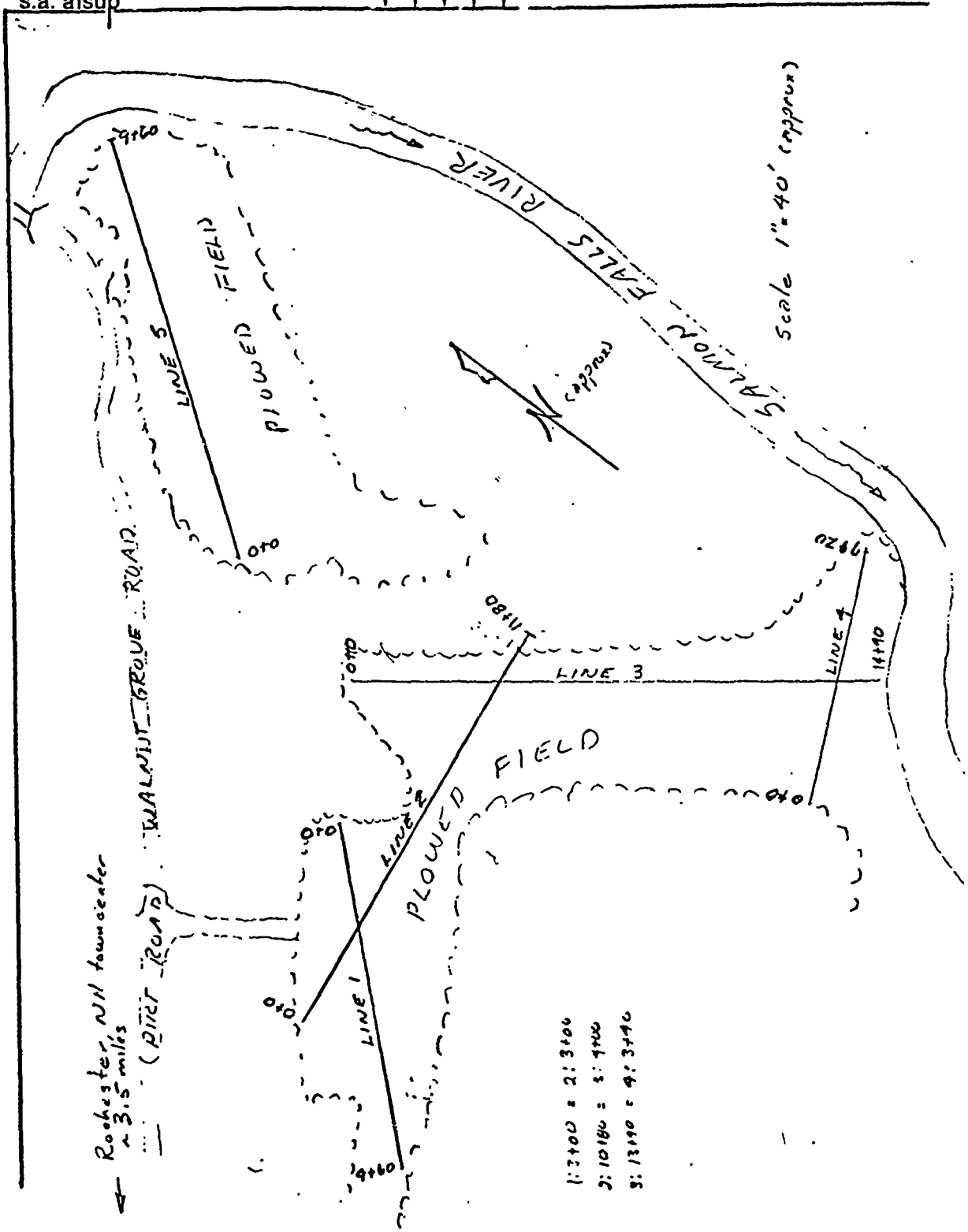


Figure 2. Sketch Locus Map, Seismic Refraction Investigations, Rochester, New Hampshire

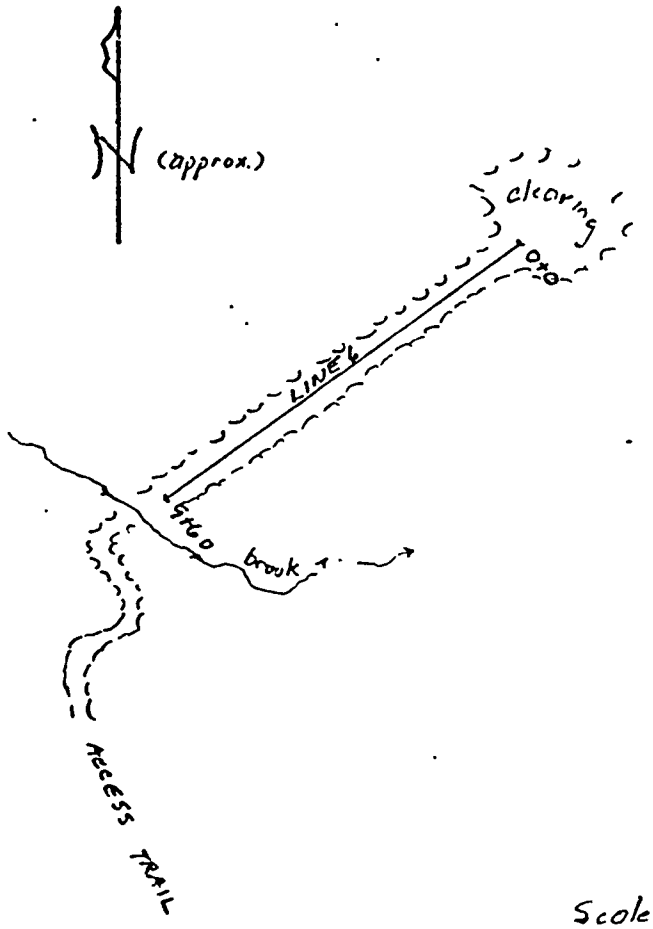


Figure 3. Sketch Locus Map, Seismic Refraction Investigations Rochester, New Hampshire.

initiation time channel) on self-developing dry-write siesmograms. Small explosive charges were used throughout the investigation as an energy source (18 lb 40% extra gel dynamite), with charges detonated in stemmed and tamped holes about two feet deep. All charges were initiated by "Instadet" electric blasting caps.

"End" shots were detonated at 10-foot spacing from the end of each spread with "quarter shots" at 80-foot intervals detonated along the spread to provide the seismograms needed for analysis. All spreads were "reversed" with shots at each end, and all end shots were repeated as the spread was advanced along each line for analysis accuracy and data redundancy.

The seismic data were analyzed according to the standard "cross-over distance" technique (distances from shot point to take-over intersections determined from measurements fo compressional wave first arrival times), and all depths calculated from the data are assumed to represent conditions below shot points. Refraction velocities are represented as the average of velocities measured from reversed profile data sets. Separation of units showing significantly different but consistant refraction velocity ranges is done by smoothed extrapolation laterally of conditions calculated at each shot point to adjacent shot point results.

3.00 RESULTS OF INVESTIGATIONS

Please note that all elevations shown in Figures 4 - 9 are scaled from the topography shown in Figure 1 and may be in error by 10 feet or greater. Depth below ground surface to changes in velocity and local topography along the profile line are represent-

ative of actual conditions.

Line 1 (Figure 4) shows conditions typical of the area investigated, with an upper layer of unconsolidated soil and granular materials ranging between 13 and 26 feet in thickness. The refraction data do not indicate the presence of significant amounts of groundwater in this unit, but four or five feet of saturation may be present above the bedrock surface that might not show in the refraction analysis results. From STA 0+00 to 4+00 and between STA 5+60 to 9+20, the upper layer rests on bedrock. Between 4+00 and 5+60, a pocket of groundwater is indicated by the refraction data, with a maximum thickness of the saturation zone about 24 feet. The presence of a pinching-out saturated zone of unconsolidated material resting on glacial till is also indicated between STA 9+20 and 9+60, probably communicating with the Salmon Falls River several hundred feet south of the 9+60 position.

Line 2 (Figure 5) crosses Line 1 at STA 3+00 of both lines, with the lower stationing part of the profile showing the same characteristic of subsurface conditions shown in Line 1 (unconsolidated materials over bedrock, no groundwater indicated). Beginning at about STA 5+60, velocities suggesting groundwater saturation are present, with somewhat low velocity (4400 feet/second) suggesting that saturation is not complete or the materials present are porous but not permeable (possibly lacustrine clays). From about STA 9+00 to 12+00, velocities are characteristic of saturated granular deposits. Maximum thickness of the inferred saturated zone beneath Line 2 occurs below STA 11+20 (about 53 feet) in a shallow valley in the bedrock surface.

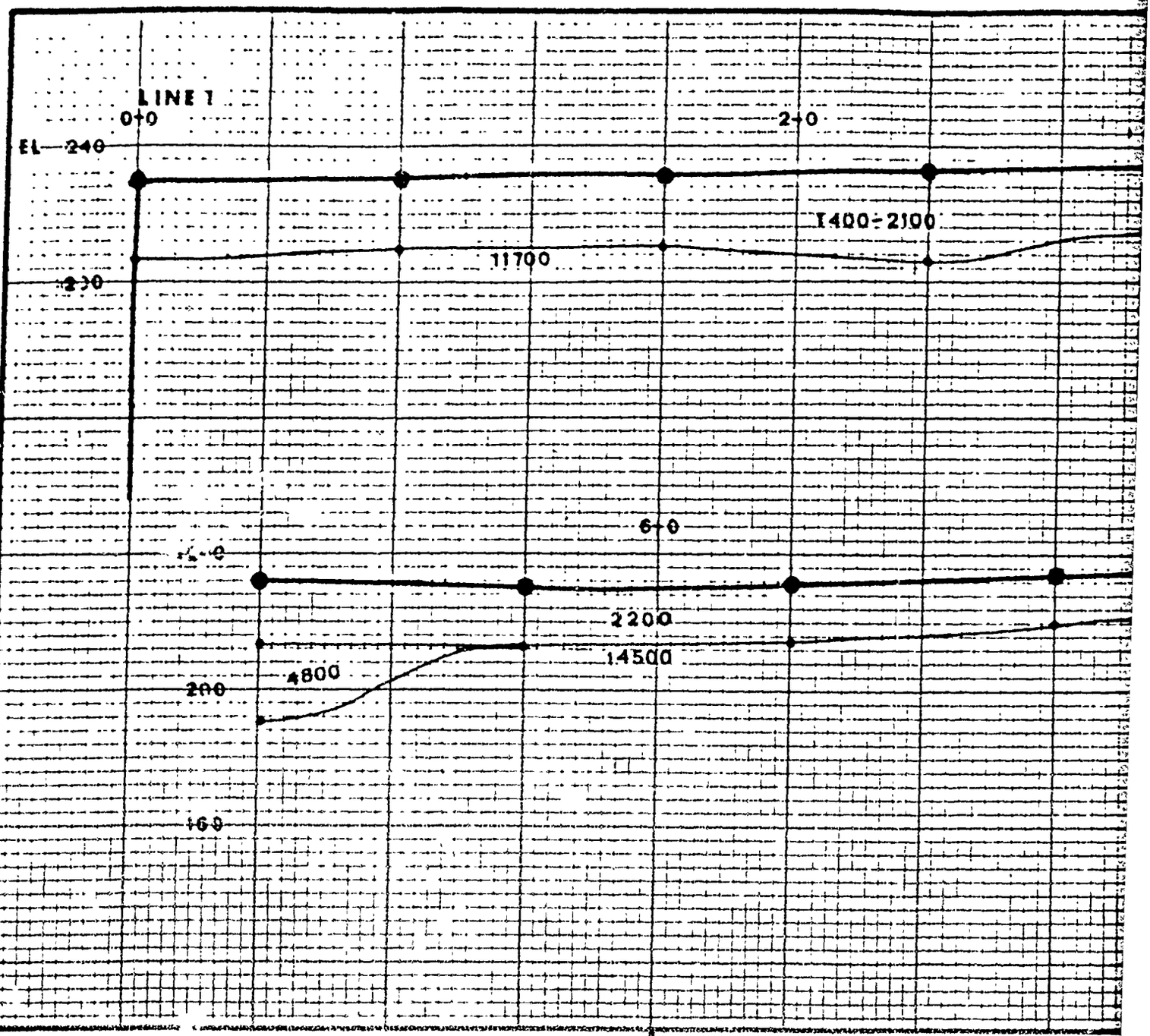
Line 3 (Figure 6) extends from a sawdust pile to the bank of the Salmon Falls River, crossing Line 2 at STA4+00 (2:10+80), showing the characteristic surficial layer of unsaturated and unconsolidated materials between 10 and 15 feet thick. Velocities below this layer are typical of saturated granular deposits, and the groundwater table is expected to be at the base of the upper layer. The bedrock surface beneath the saturated zone tends to lower elevation toward greater stationing, except between STA 10+00 and 12+00, where a low hill in the bedrock surface is indicated. Minimum thickness of the inferred zone of saturation is 39 feet (STA 2+40), with a maximum below STA 9+60 (64 feet). Over 60 feet of saturated zone is indicated from STA 12+40 to 14+40.

Line 4 (figure 7) intersects Line 3 at 3:13+40 and 4:3+40, showing the same low velocity surficial layer of unsaturated and unconsolidated low density deposits seen beneath Line 3 overlying a zone with refraction velocities typical saturated granular deposits. The thick zone of saturation is shown to thin as the profile approaches the Salmon Falls River (just beyond STA 7+20).

Subsurface conditions below Line 5 (Figure 8) include a relatively thick layer of low density unsaturated surficial material ranging from about 30 feet in thickness at the higher elevations and thinning to about 10-feet or so near the river. Groundwater saturation is indicated near the beginning of the line in a zone as much as 64 feet thick that pinches out on a bedrock mound capped by moderately dense glacial till near STA 2+40. The indication of groundwater saturation begins again at STA3+20 and extends beneath the line to STA 12+00 near the river, where the saturated zone of 63 feet thick on the basis of the data.

Line 6 (Figure 9) crosses a kame about one and one-half miles northwesterly of the area investigated by Lines 1 - 5. The kame materials show low compressional wave velocities, with a kame thickness ranging between 12 and 36 feet beneath the line profiled. One small pocket of groundwater is indicated below STA 2+40, and a mound of glacial till appears present on the bedrock surface below STA 4+00. No other indications of groundwater saturation in the came are evident in the refraction results.

(END)



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEOPHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

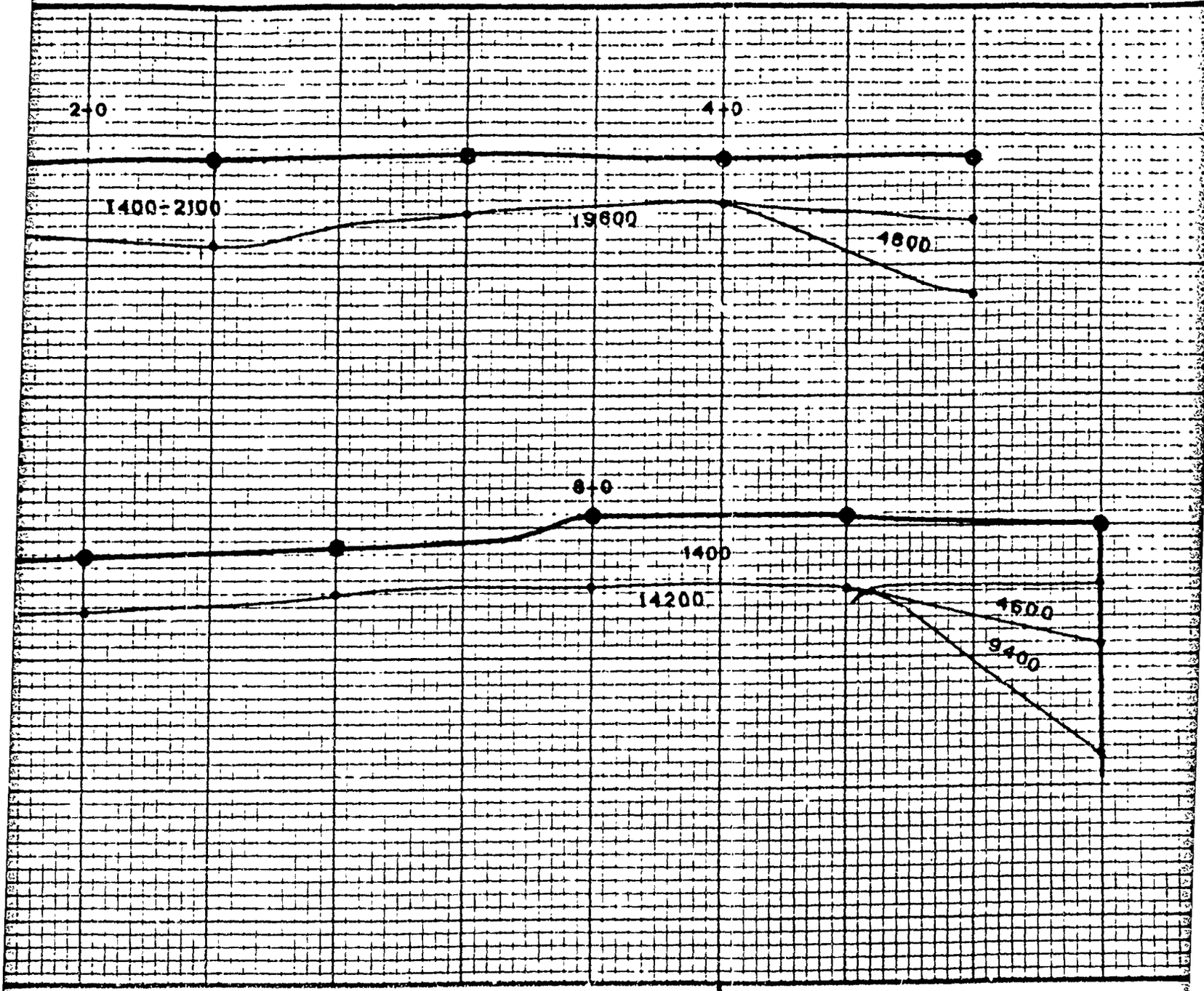
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——▶●——● 1600

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES —— 4700 ---------- 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——

ROCHESTER, NH

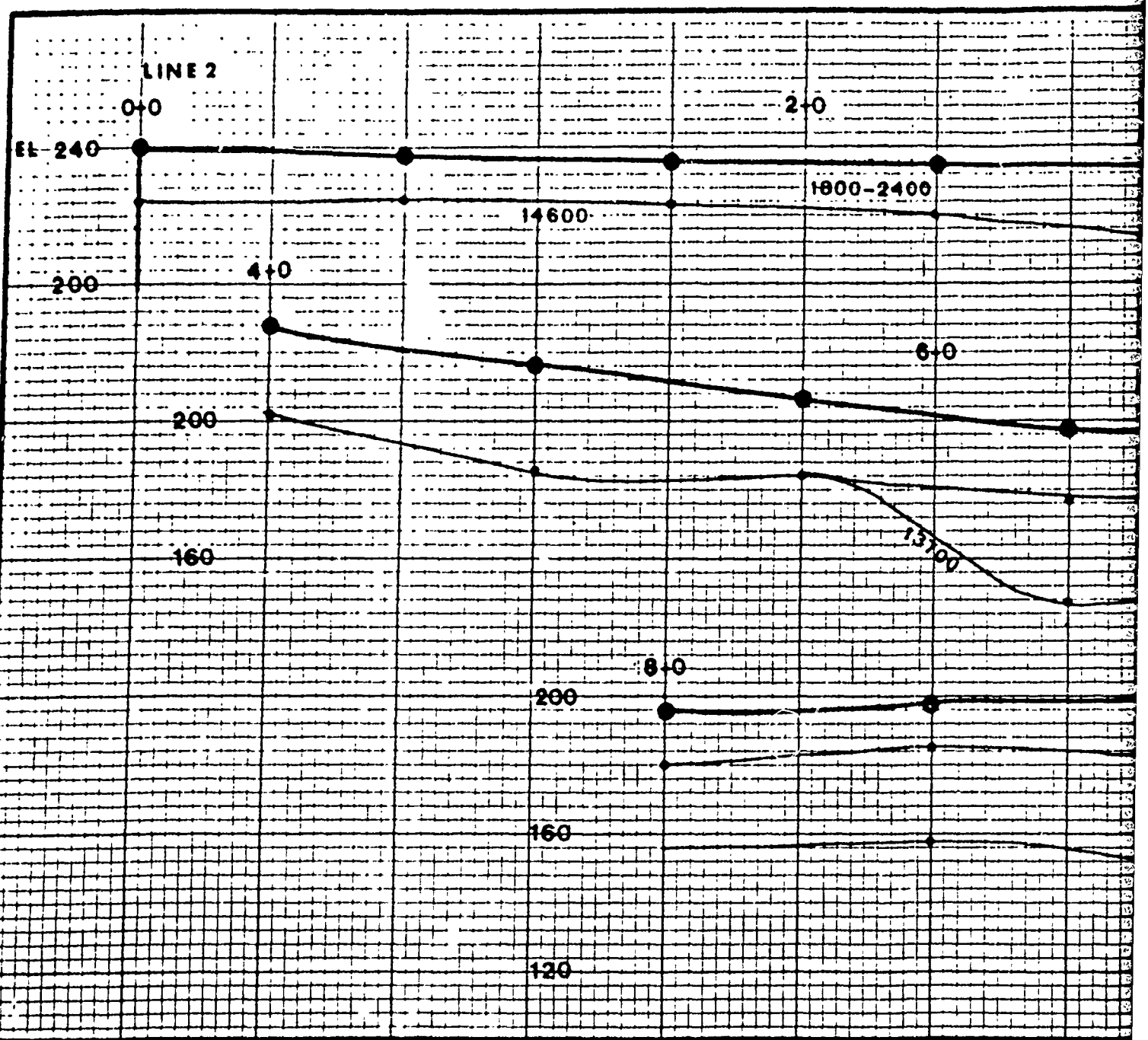
SEISMIC SURVEY PROFILE

GEOPHYSICAL SERVICES DEPARTME

S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113B

FIGURE 2



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

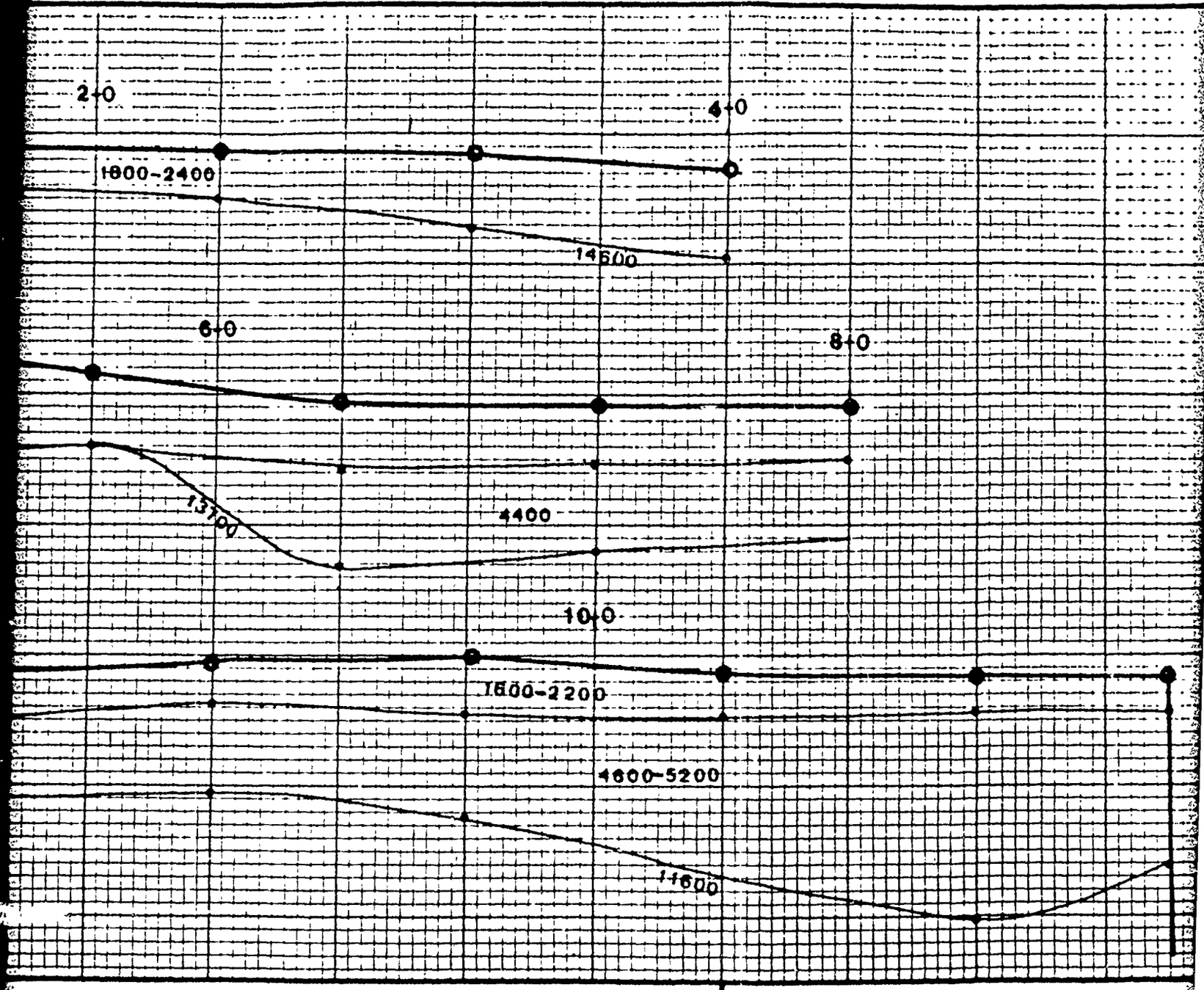
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS
GEOPHONE SPREAD — 1600
INFERRED SUBSURFACE VELOCITY BOUNDARIES — 4700, 10200
SEISMIC WAVE VELOCITIES IN FEET PER SECOND

ROCHESTER, NH

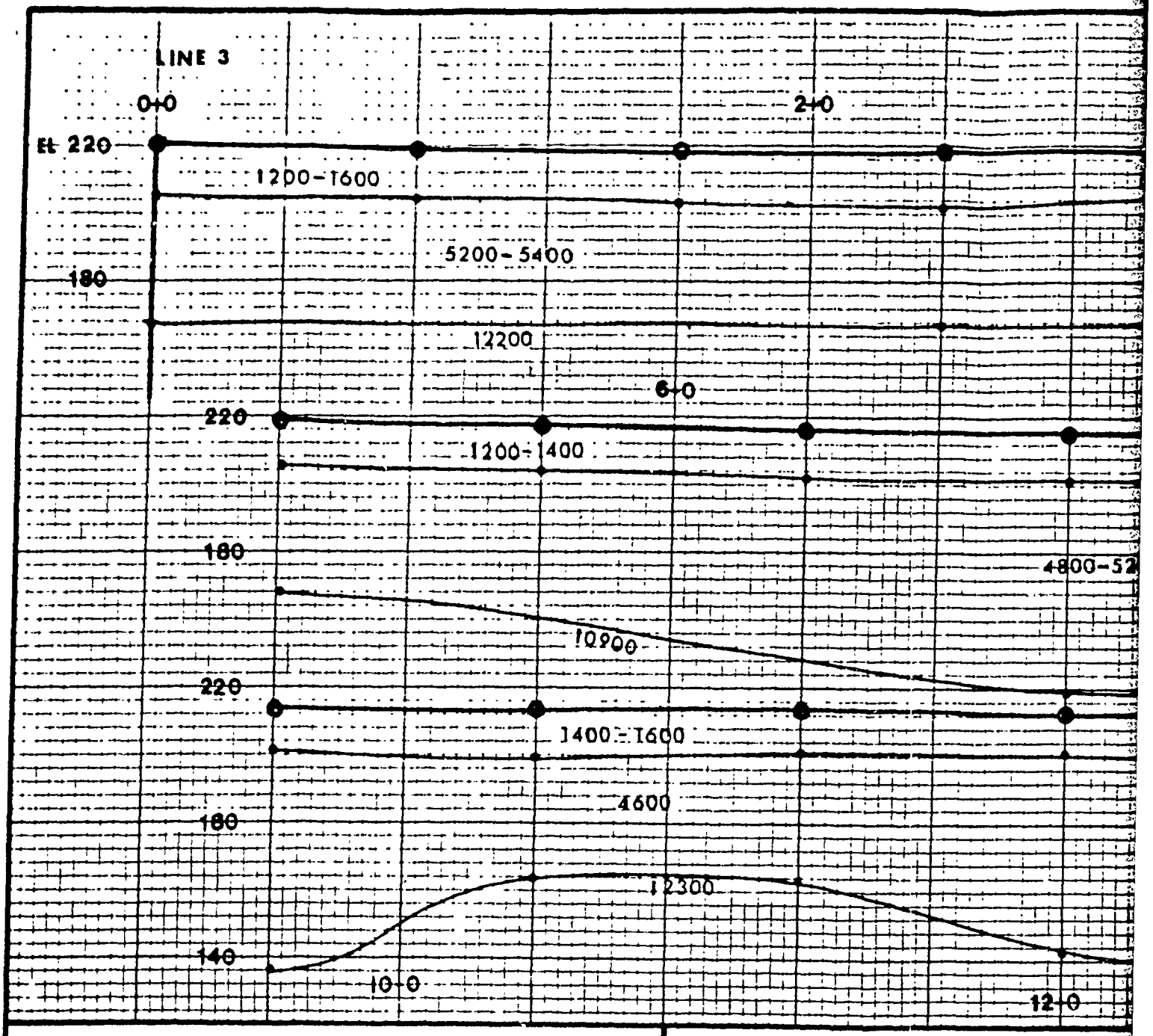
SEISMIC SURVEY PROFILE

GEOPHYSICAL SERVICES DEPARTME

S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113B

FIGURE 5



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

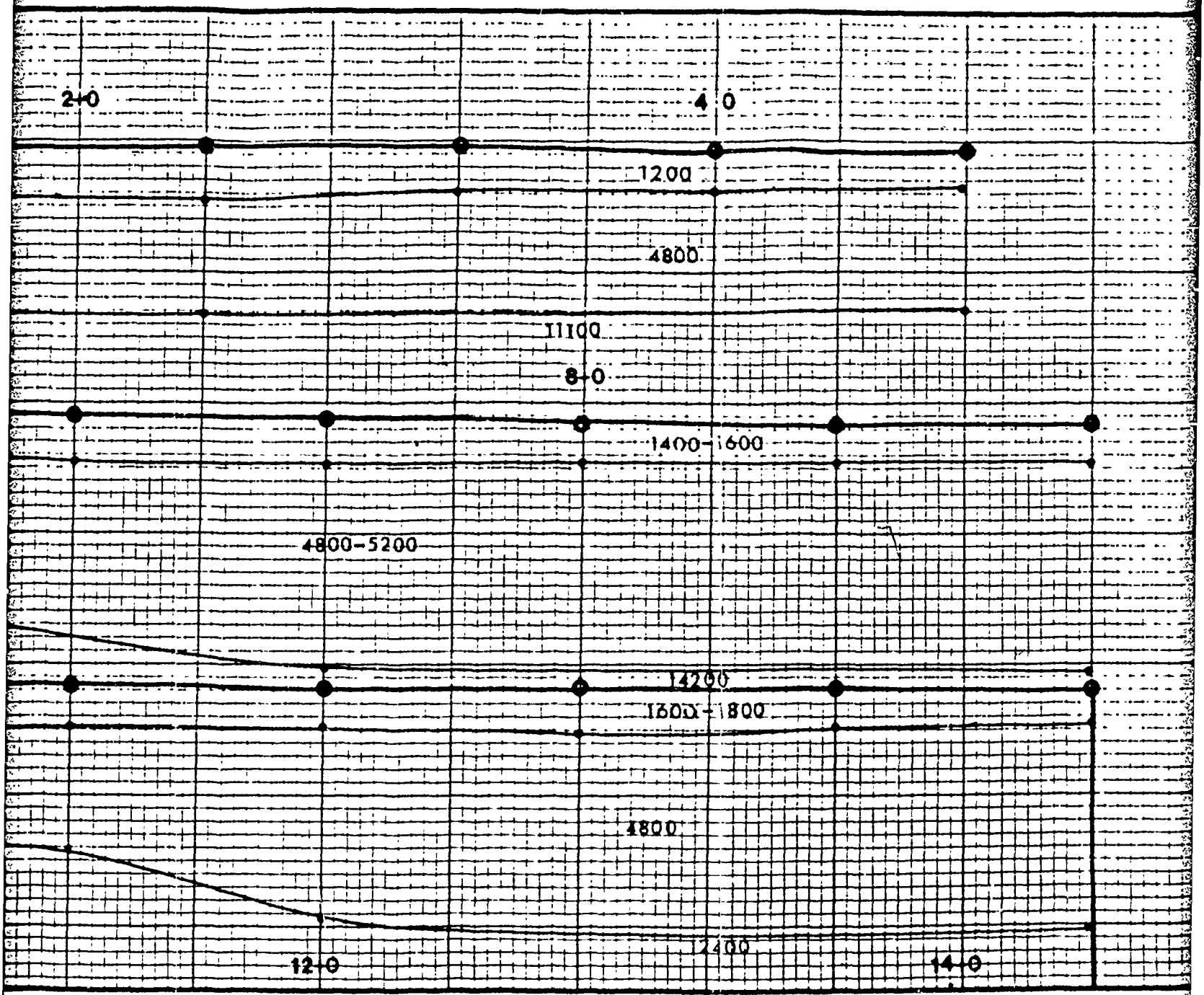
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——————

GEOPHONE SPREAD ——————

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——————

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——————



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS

GEOPHONE SPREAD — 1600

INFERRED SUBSURFACE VELOCITY BOUNDARIES — 4700 — 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND

ROCHESTER, NH

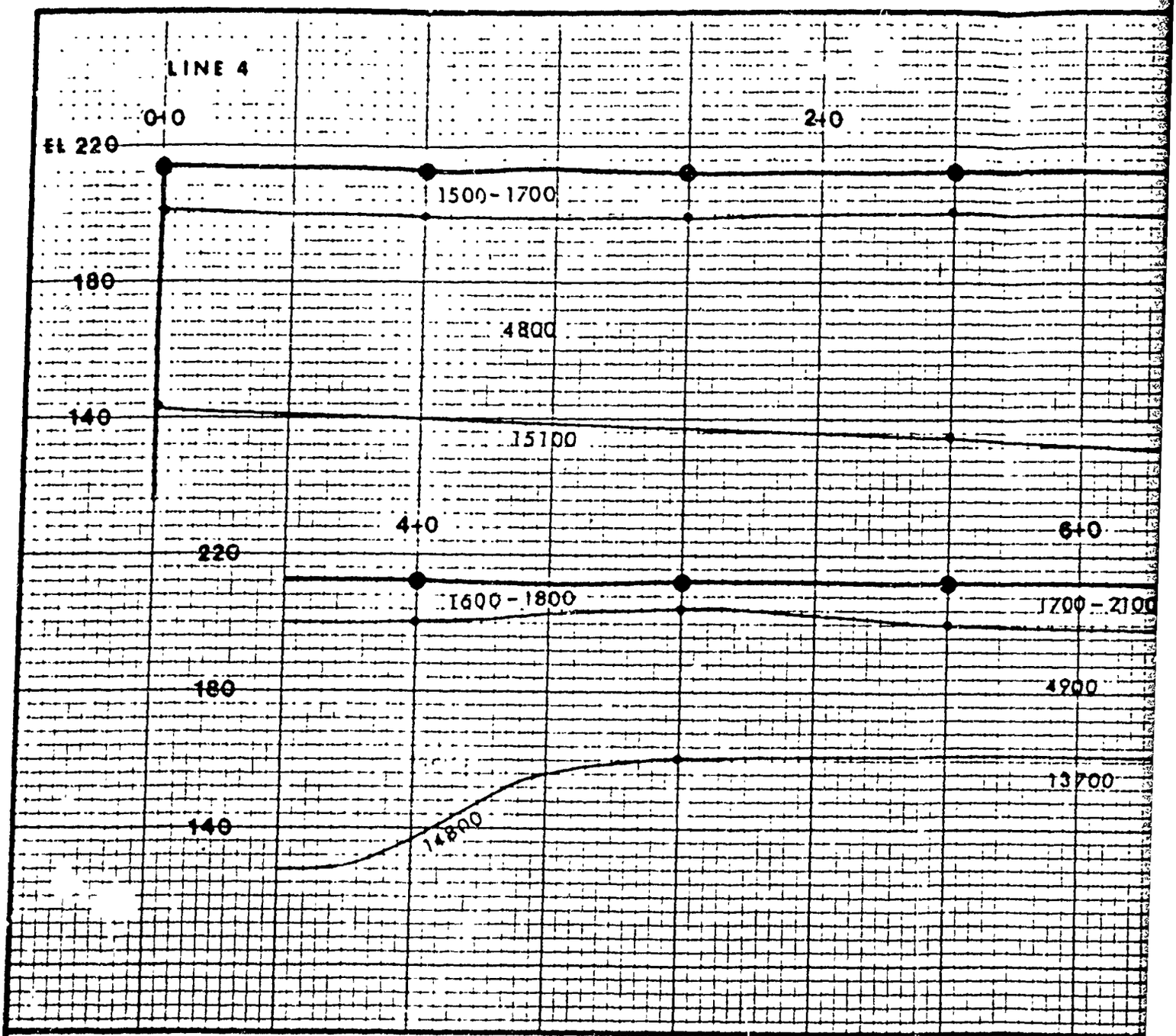
SEISMIC SURVEY PROFILE

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S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113B

FIGURE 6



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEOPHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

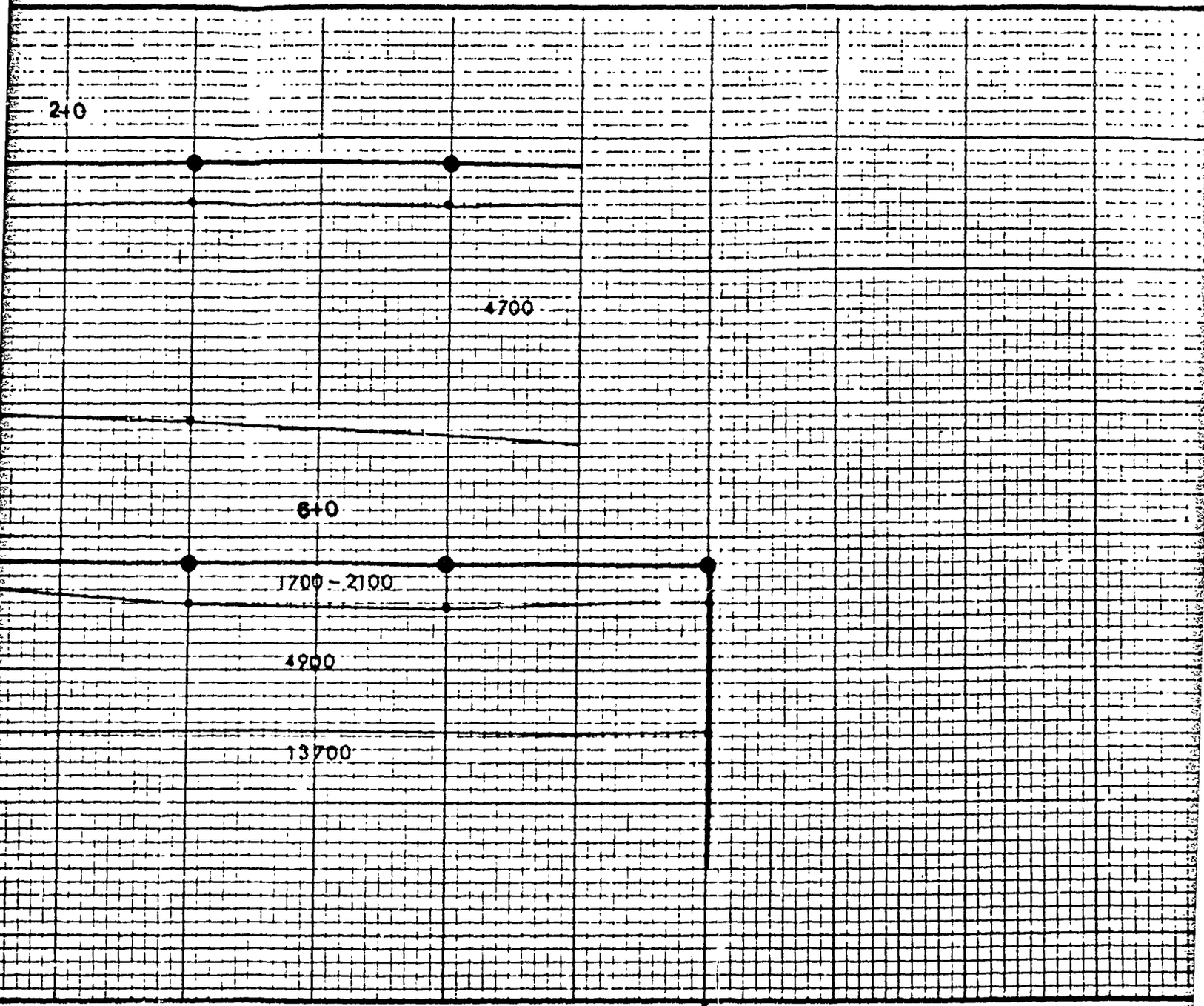
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ———

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 4700 / 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ———

ROCHESTER, NH

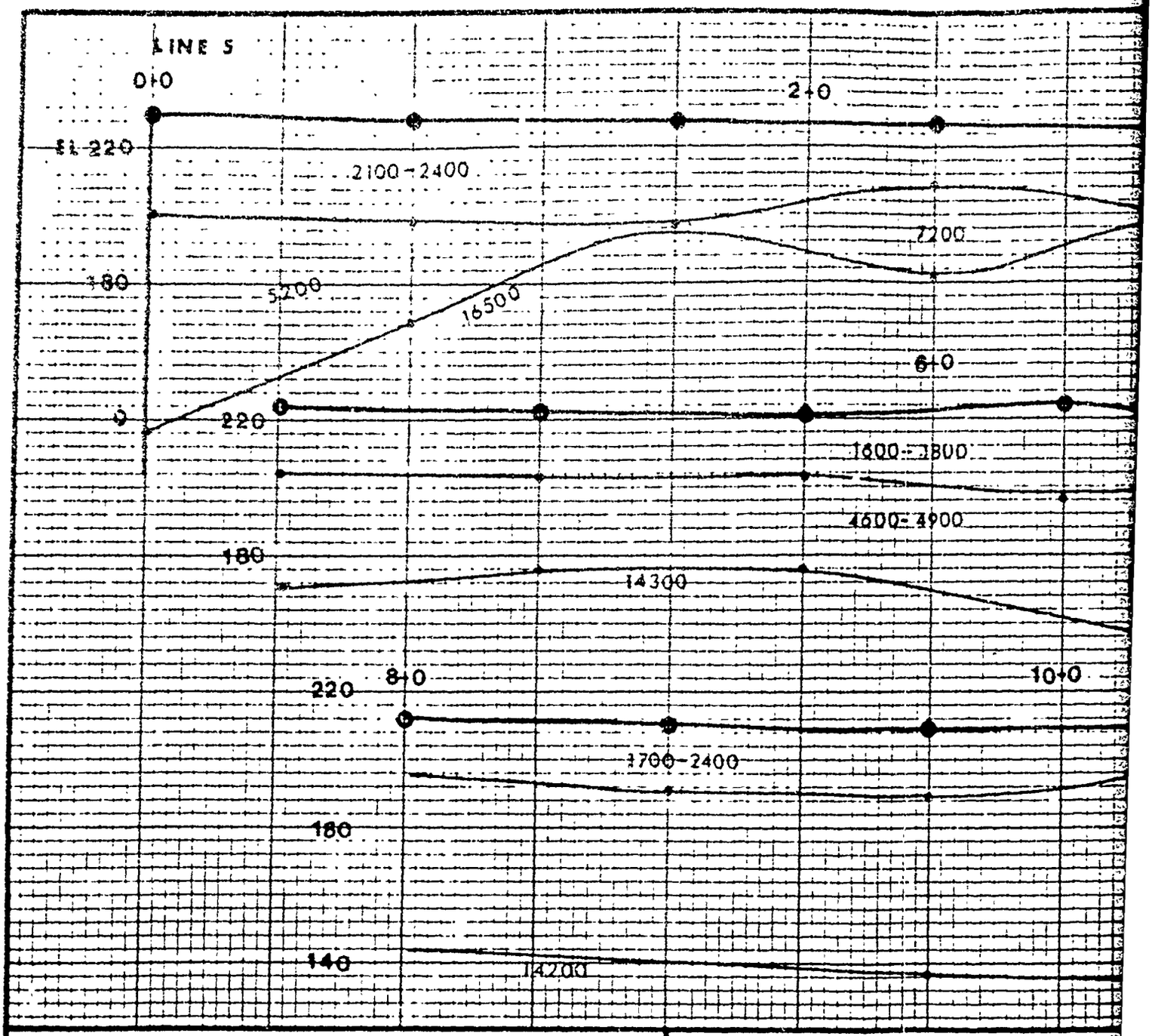
SEISMIC SURVEY PROFILE

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S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113B

FIGURE 7



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ± 10 %. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

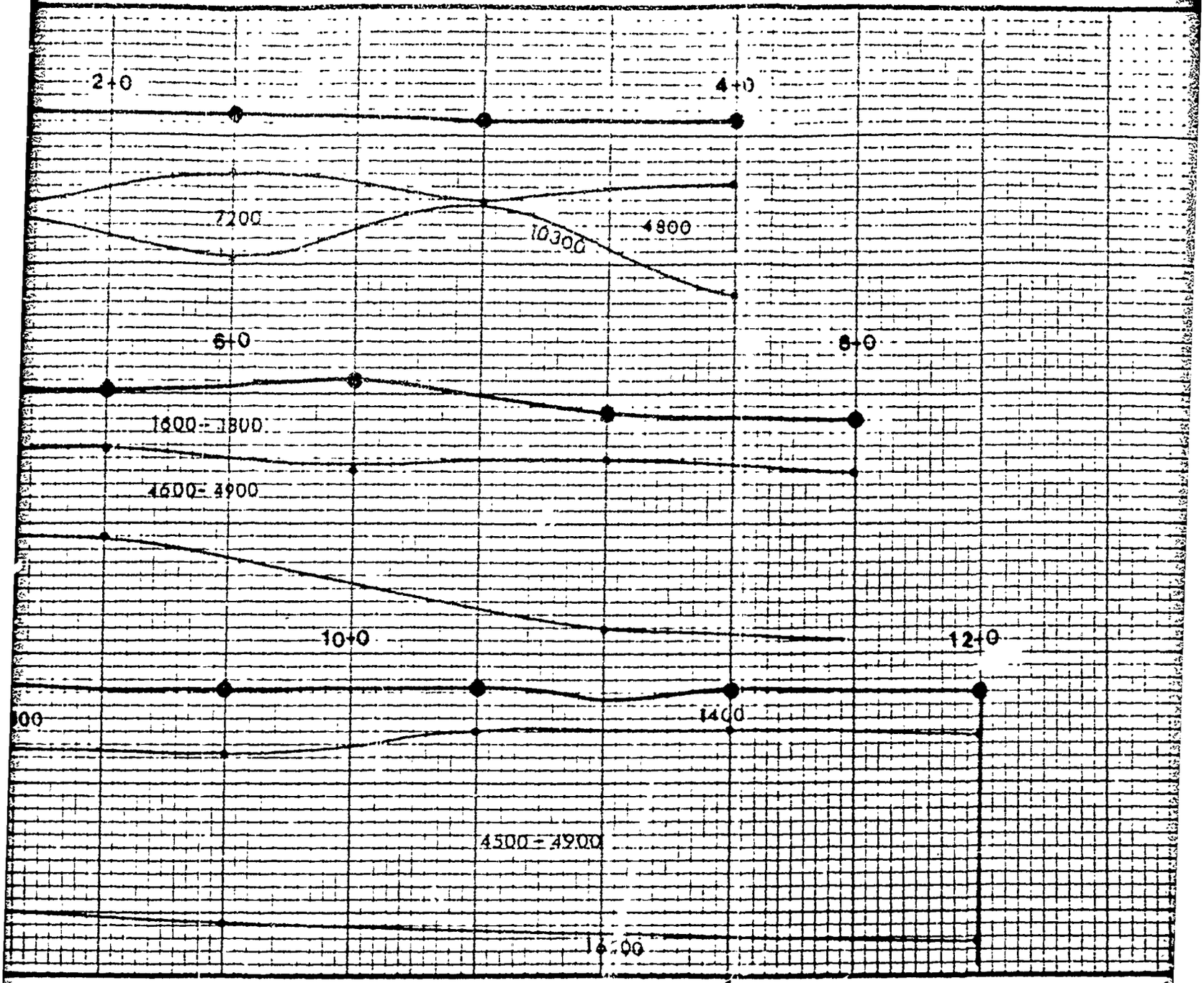
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS

GEOPHONE SPREAD

INFERRED SUBSURFACE VELOCITY BOUNDARIES

SEISMIC WAVE VELOCITIES IN FEET PER SECOND



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——— 1600

GEOPHONE SPREAD ———

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——— 4700 ——— 10200

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ———

ROCHESTER, NH

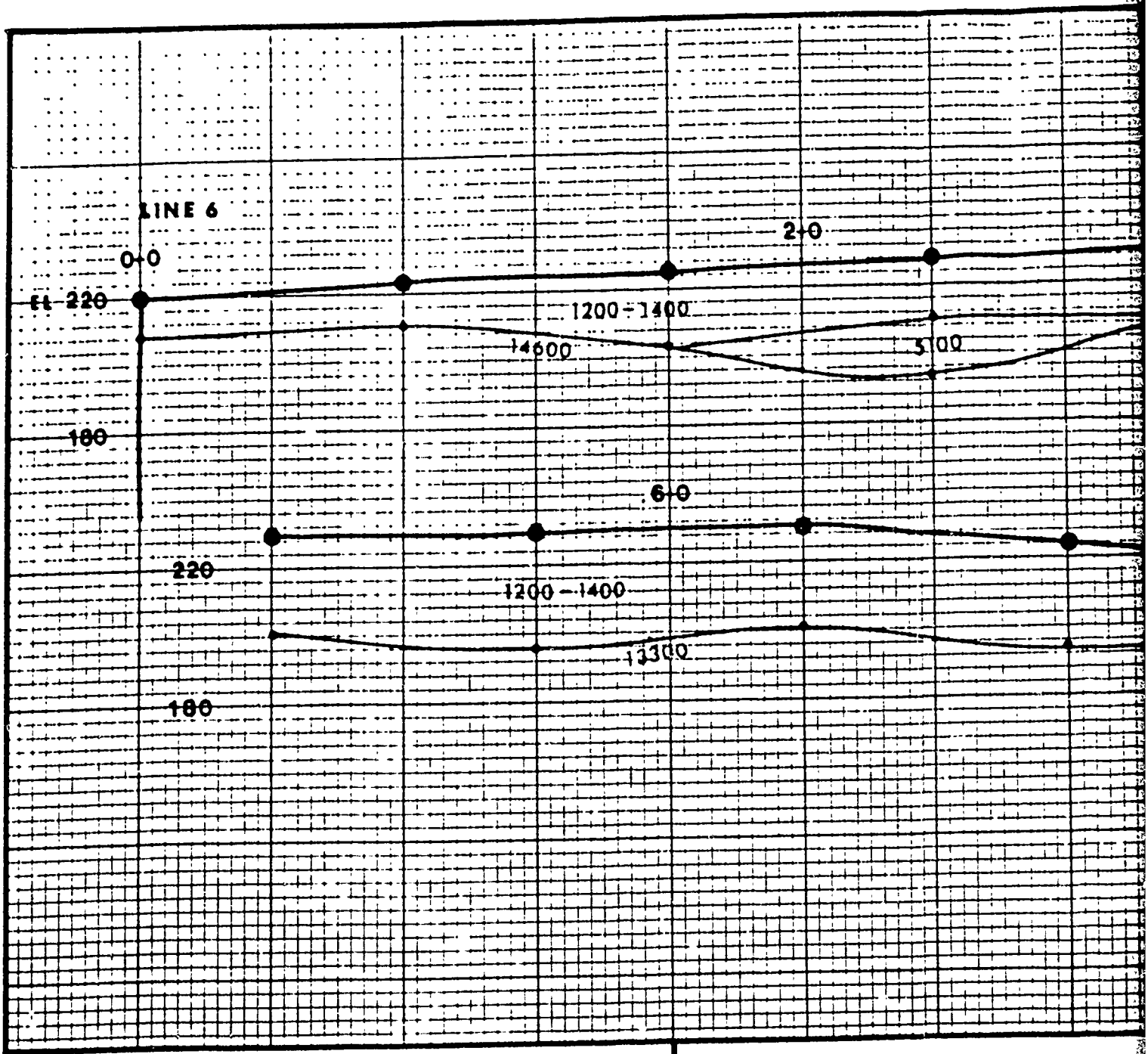
SEISMIC SURVEY PROFIL

GEOPHYSICAL SERVICES DEPART

S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113B

FIGURE 2



INTERFACES OR INFERRED INTERFACES BETWEEN SEISMIC VELOCITY ZONES ON THE FIGURES ABOVE ARE BASED UPON THE RESULTS OF STANDARD GEO-PHYSICAL INTERPRETATION TECHNIQUES. DEPTHS BELOW SURFACE, VELOCITY ZONE THICKNESS, AND VELOCITIES ARE INDICATIVE OF AVERAGE CONDITIONS BENEATH THE GEOPHONE SPREAD AND SHOULD BE USED FOR PLANNING PURPOSES ONLY. ESTIMATED ACCURACY OF THICKNESSES AND DEPTHS FOR THIS SURVEY IS ±10%. DEPTHS TO INFERRED SATURATED ZONES APPLY TO DEPTHS AT TIME OF SURVEY.

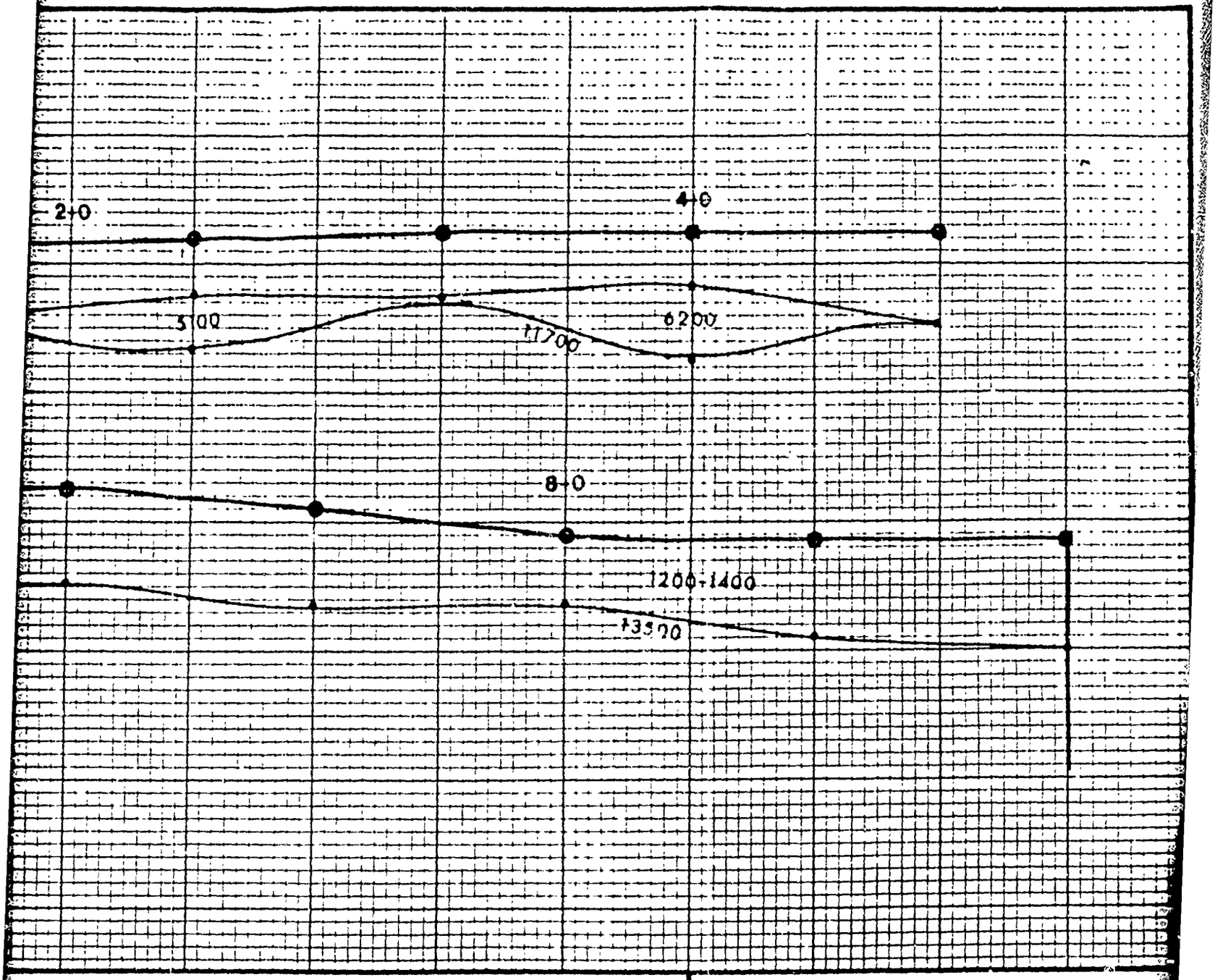
SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS ——

GEOPHONE SPREAD ——

INFERRED SUBSURFACE VELOCITY BOUNDARIES ——

SEISMIC WAVE VELOCITIES IN FEET PER SECOND ——



SCALE: VERTICAL 1"=40'
HORIZONTAL

SHOT POINTS
GEOPHONE SPREAD
INFERRED SUBSURFACE VELOCITY BOUNDARIES
SEISMIC WAVE VELOCITIES IN FEET PER SECOND

1600
4700
10200

ROCHESTER, NH

SEISMIC SURVEY PROFILE

GEOPHYSICAL SERVICES DEPARTMENT

S. A. ALSUP ASSOCIATES
Newton, MA

FILE NO. 79113B

FIGURE 9

APPENDIX G

BORING LOG AT RO-3 BY THE CORPS OF ENGINEERS

U S ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION

FIELD LOG OF TEST BORING

Site SE NH Water Study Rochester NH Page 1 of 8

Boring No. FD-1 Desig Ro-3 Diam. (Casing) NXTC

Co-ordinates: N _____ E _____

Elevation Top of Boring 200± M.S.L. Hammer Wt. 140 350 Boring Started 5/29/79

Total Overburden Drilled 73.2 Feet Hammer Drop 18"±30" Boring Completed 6/7/79

Elevation Top of Rock 126.8 M.S.L. Casing Left 5.0'

Total Rock Drilled 4.3 Feet Subsurface Water Data: _____ Page 1

Elevation Bottom of Boring 122.5± M.S.L. Obs. Well Set @ 41.6 OP3

Total Depth of Boring 77.5 Feet Drilled By _____

Core Recovered 53 % No. Boxes 1 Mfg. Des. Drill CME Longyear

Core Recovered 2.3 Ft. Size BX Diam. 1⅝ in. Inspected By: C. Tyrell

Soil Samples 2 in. Diam. 6" No. Classification By: _____

Soil Samples 11/2 in. Diam. 1 No. 46 Classification By: Anthony J. Joyce

DEPTH	CORE/SAMPLE NO	SIZE	DEPTH RANGE	BLOWS PER FT. CORE RECVY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
0.5	S-1	2"	0.0 0.5	1	Drove 2" ID X 2.5 split sample spoon by impact 140# Hammer w/ 30" drop 0.0 To 1.5 & Took Sample	Topsoil / Grass & roots
1.5	S-2	2"	0.5 1.5	3 7		Brown fine Sandy (25-35) SILT (ML) w/ few roots
	S-3	2½"	1.5 5.0	12 13 23 26	Drove 2½" ID X 5.0 S.S Spoon from 1.5' To 5.0 & Took Sample Hole open & Clean To 5.0	Brown & Grey fine Sandy (35-45) SILT (ML)
5.0	S-4	2"	5.0 6.5	16 27 26	Drove 2" ID X 2.5 Split sample spoon by impact 140# Hammer w/ 30" drop 5.0 To 6.5 & Took Sample	Brown & Grey Silty fine SAND (Sm) Stratified
6.5	S-5	2"	6.5 10.0	16 6 1 6	Drove 2" ID X 5.0 SS Spoon 6.5 To 10.0 & Took Sample - Jetted NXTC 0.0 To 10.0'	Brown to Grey SILT (ML) w/ Large Cobbles 9.8 to 10.0'
10.0						

GENERAL REMARKS: Proceed Field Boring Location (3 Edge of Property) Mark in Granny Gear Rd. on from

FD ... 1,56 (Test) Boring No FD-1

Site [illegible]

Boring No FD-1

Page 2 of 2

DEPTH ft	CORE/SAMPLE NO.	SIZE	DEPTH RANGE	BLOWS PER FT CORE REC'VY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
10.0	T-11 20+2 T-10R	2"	10.0 To 11.5	2 2 2	Drove 2" ID X 2.5 split sample spoon by impact 140 lbs. w/30" drop 10.0 to 11.5 & took sample	Gray CLAY (CL)
11.5	T-4 20+2 T-12R	2"	11.5 To 15.0	6 6 7 6	Drove 2" ID X 5.0' S.S. spoon 11.5 To 15.0 Jetted NX to ouer spoon to 15.0 & took sample	
15.0	T-13 20+2 T-14R	2"	15.0 To 16.5	2 2 2	Drove 2" ID X 2.5 split sample spoon by impact 140 lbs. w/30" drop 15.0 to 16.5	LL = 40.8 PL = 21.0 PI = 19.8
16.5	T-15 20+2 T-16R	2"	16.5 To 20.0	6 7 6 8	Drove 2" ID X 5.0 S.S. spoon 16.5 To 20.0 & took sample - Jetted NX to 20.0	Same
20.0	T-17 20+2 T-18R	2"	20.0 To 21.5	2 2 3	Drove 2" ID X 2.5 split sample spoon by Impact 140 lbs. w/30" drop 20.0 to 21.5	Same.
21.5	T-19 20+2 T-20R	2"	21.5 To 23.5	1 1 3	Drove 2" ID X 5.0' S.S. spoon 21.5 To 25.0 Jetted NX to ouer spoon to 25.0 & took sample	
23.5	T-21 T-22R	2"	23.5 To 25.0	23		Grey Silty (S-12) Fine SAND (SP-SM)
25.0						

ED. FORM MAR 7 [illegible] BA (Test)

Boring No. FD-1

Site S-2 N.H. Hampshire | Boring No FD-1 | Page 3 of 3

DEPTH	CORE/SAMPLE NO	SIZE	DEPTH	BLOWS PER FT. CORE RECVY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
25.0	T-23 20 of 2	2"	25.0	12	Drove 2" IDX 2.5' split sample spoon by impact 140# Hmr. w/30" drop 25.0-26.5	Grey Silty (5-12) Med-fine SAND (SP-SM)
26.5			26.5	14 16		
	T-24 20 of 2	2"	26.5 to 29.4	18 26 30	Drove 2" IDX 5.0' SS, spoon 26.5 to 31.5 & took sample - Jetted NXFC to 30.0	
29.4			29.4			
30.0	T-25	2"	29.4 30.0	32		Brown Silty (5-12) M-F SAND (SP SM)
	T-26 20 of 2	2"	30.0 to 31.5	13 14 14	Drove 2" IDX 2.5 split sample spoon by impact 140# Hmr w/30" drop 30.0 to 31.5 took sample	
31.5	T-27 20 of 2	2"	31.5 to 35.0	16 15 23 22	Drove 2" IDX 5.0' SS spoon from 31.5 to 35.0 & took sample Jetted NXFC to 35.0	w/Cobble @ 33.9
35.0	T-28	2"	35.0 to 36.5	13 14 28	Drove 2" IDX 2.5 split sample spoon by Impact 140# Hmr. w/30" drop 35.0 to 36.5	
36.5			36.5	20	No only small amount	
	T-29	2'	36.5 to 40.0	17 53 70	Drove 2" IDX 5.0' SS spoon 36.5 to 40.0 & took sample - Jetted NXFC to 40.0 — No only small amount sample	Some w/Large Pc gravel @ 38.6
40.0					Cont on oub. sheet # 4	

Site | Boring No 101 | Page 1 of 3

DEPTH	CORE/SAMPLE NO	SIZE	DEPTH RANGE	BLOWS PER FT. CORE RECVY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIAL
40.0				4	Drove 2" split spoon w/ impact of 140# Hmr w/ 30" drop 40.0 to 41.5 last sample spoon empty	Tan ~~Silty (Cl)~~ fine Gravelly (3.9) SAND (SP)
41.5	T-30	2"	40.0 to 45.0	4		
	20/2	2'		14	Drove 2" I.D. X 5.0' SS spoon 42.9 to 45.0 & took sample	
				22		
				28	Jetted N X FC to 45.0	
45.0			45.0	32		
				56	Drove 2" split spoon from 45.0 to 46.5 by impact 140# Hmr w/ 30" drop. Lost sample	Tan Med-fine SAND (SP)
		2'	45.0	59		
46.5	T-31			52		
	20/2	2"	To	46		
				46	Drove 2" I.D. X 5.0' SS spoon 45.0 to 50.0 & took sample	
				21		
			50.0	25	Jetted N X FC to 50.0	
50.0						
	T-32		50.0	47	Drove 2" I.D. X 2.5 split spoon from 50.0 to 51.5 by impact 140# Hmr w/ 30" drop	Tan Silty (5.0-12.0) fine SAND (SP-SM)
	20/2	2"		43		
51.5			51.5	12		
	T-33		51.5	25	Drove 2" I.D. X 5.0' SS spoon from 51.5 to 55.0 & took sample	
	20/2	2"	To	17		
			55.0	33	Jetted N X FC to 55.0	
55.0					Cont on sub sheet #5	

ED... FORM 88A (Test)

Boring No 101

Site SAF - NEW HAMPSHIRE AVE (U.S. Rt. 5) Bldg - ROCHESTER, NH | Boring No. FD-1 | Page 5 of 9

DEPTH	CORE/SAMPLE			BLOWS PER FT.	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
	NO.	SIZE	DEPTH / RUN	CORE RECVY		
53.0	F30	2"	55.0	31	Drove 2" ID X 2.5 split sample spoon from 53.0 to 56.5 by Impact 140# Ham. w/30" drop	Tan Med-fine SAND (SP)
56.5	F34	2'	56.5	25		
				27		
	F35		56.5	24		
		2'	to	37	Drove 2" ID X 5.0' SS spoon from 56.5 to 60.0 & took sample Jetted & NX to 60.0	
	20/12			49		
			60.0	56		
60.0	F36	2	60.0	137	Drove 2" ID X 2.5 split sample spoon from 60.0 to 61.5 by Impact 140# Ham w/30" drop - washed 2" sand in the cuttings to 61.5	
			to	34		
	F37	2'	61.5	43		
61.5			61.5	28		Tan fine Sand (SP)
	F38			77	Drove 2" ID X 5.0' SS spoon from 61.5 to 65.0 & took sample — Jetted NX to 65.0 - sand welled up in csg to 61.2	
	20/12	2'	to	70		
			65.0	72		
65.0						
	F39		65.0	10	Washed 2" ID X 5.0' SS spoon from 61.2 to 65.0 & Cont. Drove 65.0 to 70.0 & took sample - Jetted NX to 70.0 - sand welled up in csg again to 66.1	
				19		
	20/12	2"	to	27		
			70.0	41		
				14		
70.0					Cont. on orig sheet #6	

FORM CBA (Test)

Boring No FD-1

Site: [illegible] New Hampshire Water Study - Rochester, N.H. | Boring No. FD-1 | Page 2 of 5

DEPTH	CORE/SAMPLE NO.	CORE/SAMPLE SIZE	CORE/SAMPLE DEPTH	BLOWS PER FT. CORE RECVY	SAMPLING AND BORING OPERATIONS	CLASSIFICATION OF MATERIALS
10.0					Washed 2" ID x 5.0' SS. Spoon Cont To 10.0 &	Tan fine SAND (SP)
	S-1	2"	10.0 To 12.1	47 150	Cont driving 10.0 To 12.1 + 150 blows No Further penetration	
12.1			12.1		Last sample Bumping.	
12.4	S-2	1½"	12.4 To 13.2	150 100	Back spoon & Csg grouted Together -	Brown Silt(5-12) Gravelly (20-30) Med to fine SAND (SM)
13.2			13.2	150	Drove 1½" ID x 5.0' SS Spoon 10.0 To 12.1 & Cont driving To 13.2 + 100 blows Bouncing Refusal - Rec sample Jetted NX Csg To	
13.2			13.2 To 17.5	RQD 43 Rec 2.3	Rotary diamond drilled Refusal @ 13.2 To 17.5 using BXM series Bit - 5PK 1768 & 5.0 Bit - Drill Time 25 min Drill water Brown w/ 50-70% Loss	
17.5					Bottom of Exploration @ 17.5	

Bit*

FORM D MAR 72 SBA (Test)

Boring No. FD-1

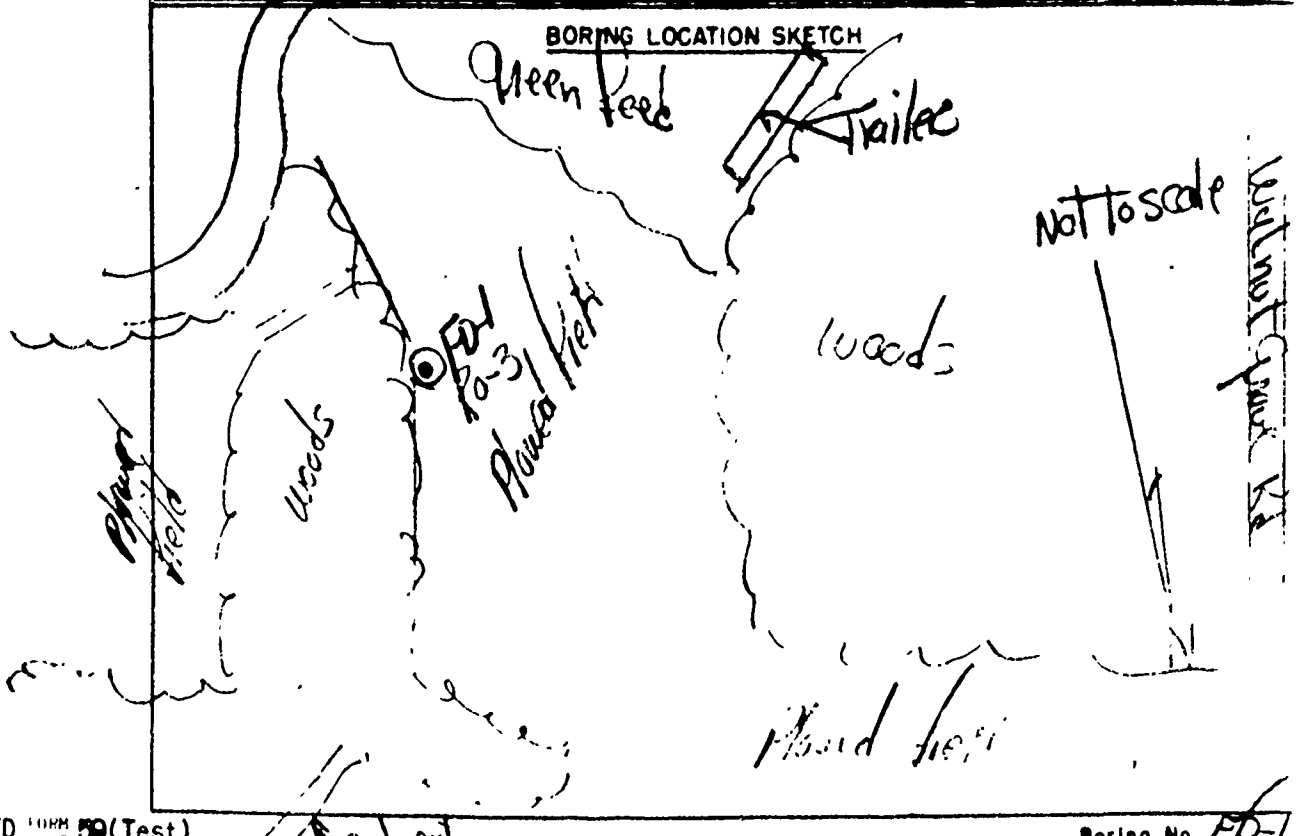
Site: NH WATER Study Rochester NH
Boring No: FD-1

SUBSURFACE WATER OBSERVATIONS

DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS
5/29	1530	15.0	20.0	7.0		½ hr after boring
5/30	0900	15.0	20.0	5.0		before pulling CSG
5/31	0800	40.0	40.0	5.1		before boring
6/1	0800	60.0	60.0	5.5		before boring
6/4	0800	65.0	65.0	5.3		Before boring
6/5	0830	70.0	72.1	5.9		" "
6/6	0830	73.0	73.2	5.6		before drilling
6/7	0830	73.0	71.5	5.8		before setting well
6/8	0830	73.0	71.5	5.4		while setting well
6/11	0830	30.0	41.0 @ 41.0	5.3		before pulling CSG & backfilling well
		see sheet 8 for well sketch				

Note: Depths are in feet below original ground

BORING LOCATION SKETCH



NED FORM 59 MAR 71 (Test)

Boring No FD-1

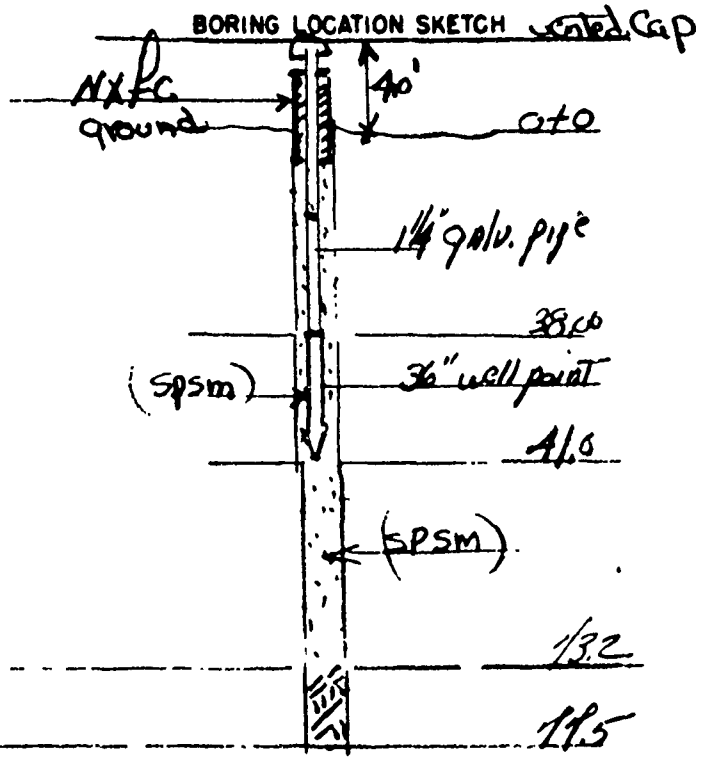
Site: F NH 155, Study
Boring No:

SUBSURFACE WATER OBSERVATIONS

DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS
Note well Flushed for 1 hour. Filled with sand. Capped - steel well point set @ 41.0 w/ 4.0 stickup above ground 1 1/4" well pipe Protected w/ 5.0 stickup of NXFC

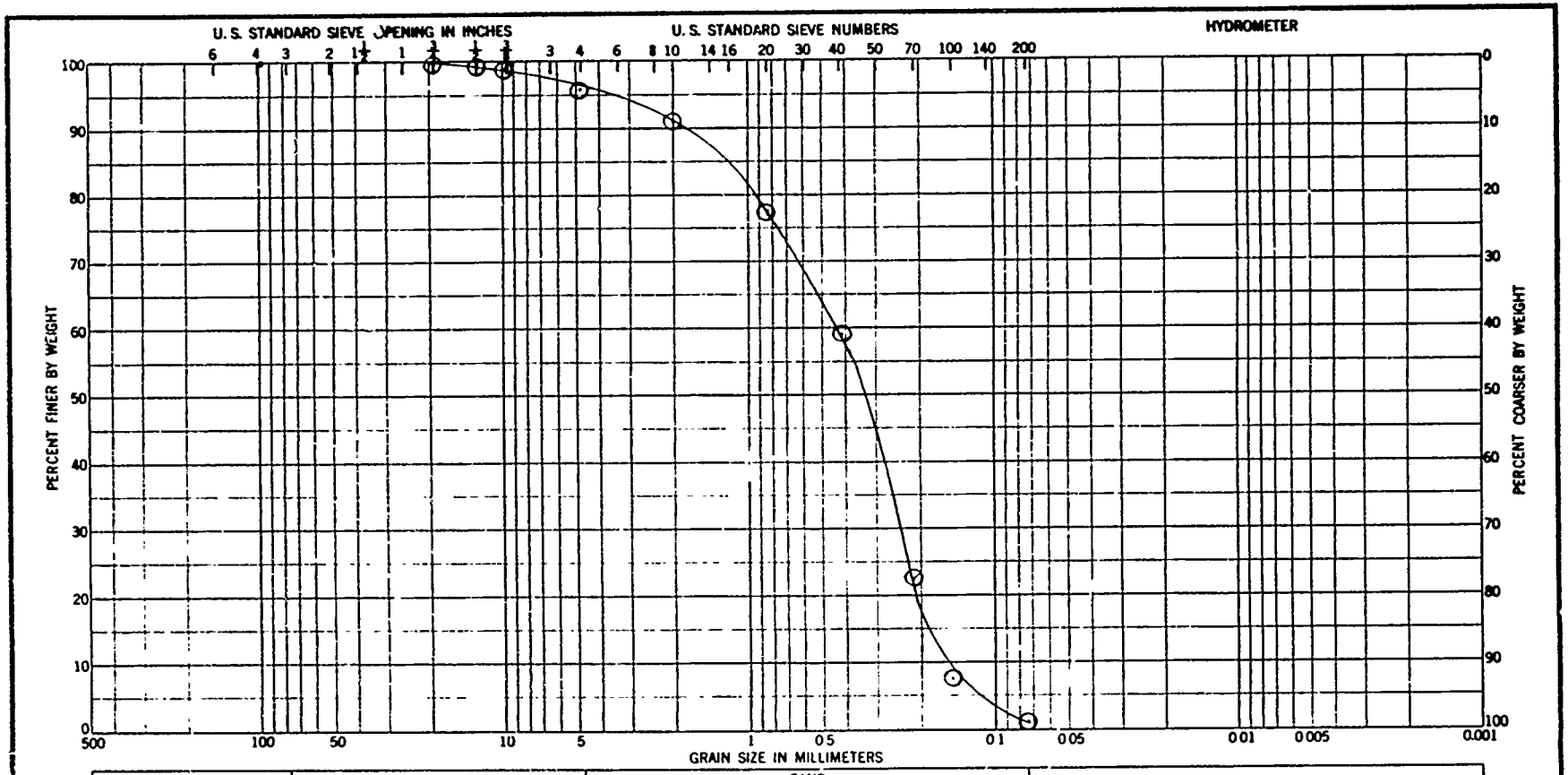
Note: Depths are in feet below original ground

BORING LOCATION SKETCH



NED 10HM 59 (Test) MAR 71

Boring No. ED-1

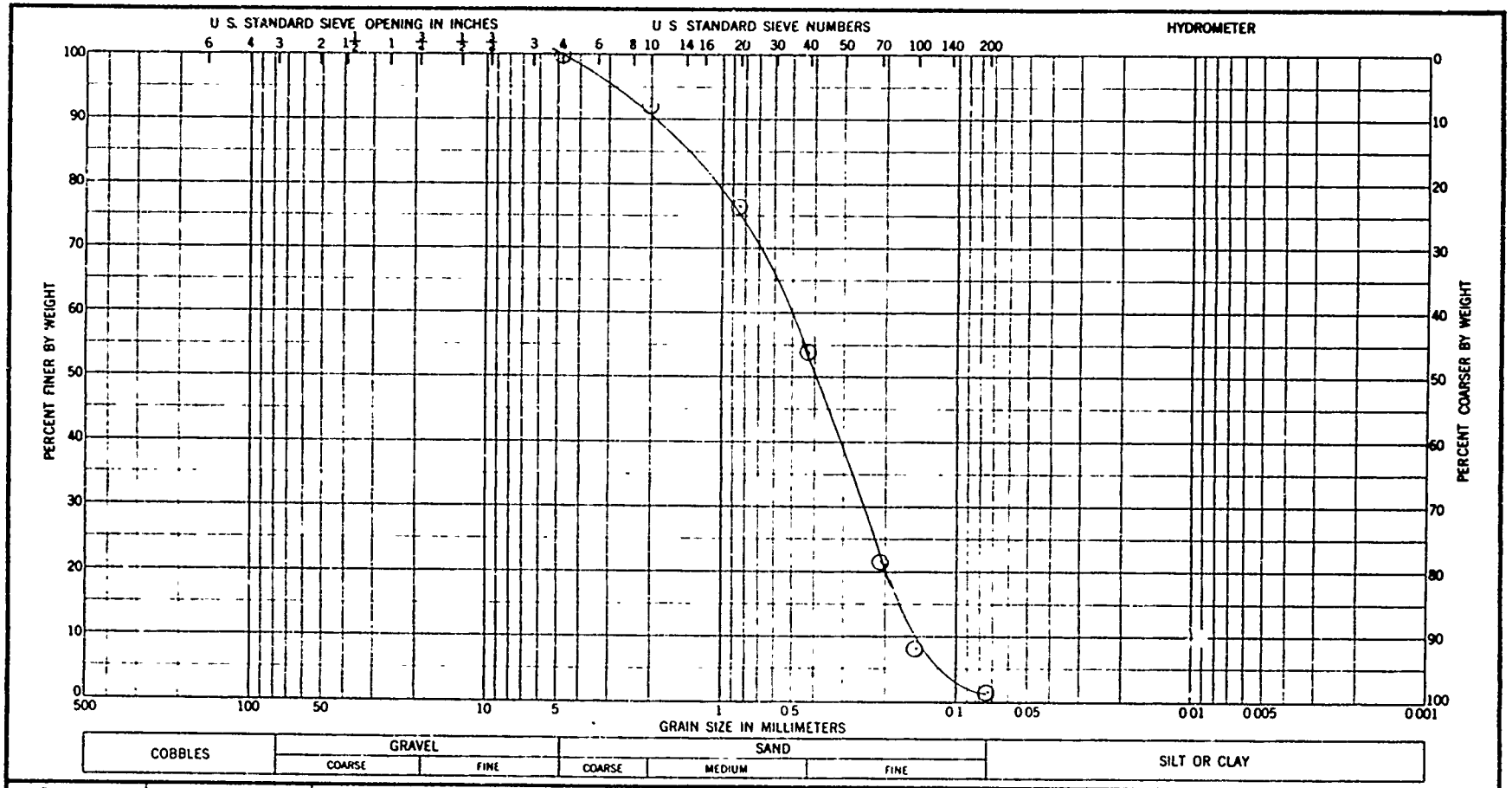


Sample No	Elev or Depth	Classification	Nat w %	LL	PL	PI
J30	40.0 - 45.0	SAND (SP)				

GRADATION CURVES

Project S.E. N.H. Water Studies
Rochester, N.H.
Area
Boring No FD 1
Date October 1979

ENG FORM 1 MAY 63 2087



Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
J31	45.0-50.0	SAND (SP)				

GRADATION CURVES

Project U.S.E.M. Waterways Station
Rancocas, N.J.
Area
Boring No F101
Date

ENG FORM 1 MAY 63 2087

APPENDIX H

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APPENDIX I

GLOSSARY

DRAINAGE BASIN - The whole area or entire tract of country that gathers water and contributes it ultimately to a particular stream channel, lake, reservoir, or other body of water.

DRAWDOWN - The lowering of the water table or potentiometric surface caused by the withdrawal of water from an aquifer by pumping; equal to the difference between the static water level and the pumping water level.

DURATION OF FLOW, OF A STREAM - The percentage of time during which specified daily discharges have been equalled or exceeded in magnitude within a given time period.

ESKERS - Sinuous ridges of assorted and somewhat stratified sand and gravel that are formed in superglacial, englacial or subglacial stream channels.

EVAPOTRANSPIRATION - Loss of water to the atmosphere by direct evaporation from water surfaces and moist soil combined with transpiration from living plants.

GAGING STATION - A site on a stream, canal, lake, or reservoir selected for systematic observations of gage height or discharge.

GLACIER - A large mass of ice formed, at least in part, on land by the compaction and recrystallization of snow , mvoing slowly over the land surface outward in all directions due to the stress of its own weight, and surviving from year to year.

ACTUAL EVAPOTRANSPIRATION - Water lost to evapotranspiration when water is the limiting factor (not enough water available.

AQUIFER - In this report an unconsolidated geologic formation that contains aminimum of 20 feet saturated permable material and will yield significant quantities of water (minimum of 50gpm) to wells for public usage.

BASE FLOW - Water that reaches the groundwater aquifer and then flows to surface streams as groundwater discharge.

BEDROCK - Solid rock commonly called "ledge" that forms the earth's crust. It is locally exposed at the surface but more commonly is buried beneath a few inches to more than 300 feet of unconsolidated deposits.

CONE OF DEPRESSION - A depression produced in a water table or other potentiometric surface by the withdrawal of water from an aquifer; in cross section, shaped like an inverted cone with its apex at the pumping well.

CONFINED AQUIFER - Where groundwater is confined under pressure greater than atmospheric by overlying, relatively impermable strata.

GROUND WATER - Water in the saturated zone.

GROUND-WATER DISCHARGE - The discharge of water from the saturated zone by: 1) natural processes such as ground-water runoff and ground-water evapotranspiration and: 2) artificial discharge through wells and other man-made structures.

GROUND-WATER EVAPOTRANSPIRATION - Ground water discharged into the atmosphere in the gaseous state either by direct evaporation or by the transpiration of plants.

GROUND-WATER MINING - When withdrawals from the aquifer consistently exceed recharge.

GROUND-WATER RECHARGE - The amount of water that is added to the saturated zone.

HEAD, STATIC - The height of the surface of a water column above a standard datum that can be supported by the static pressure at a given point.

HYDRAULIC CONDUCTIVITY (K) - A measure of the ability of a porous medium to transmit a fluid. The material has a hydraulic conductivity of unit length per unit time if it will transmit in unit time a unit volume of water at the prevailing kinematic viscosity through a cross section of unit area, measured at right angles to the direction of flow, under a hydraulic gradient, or unit change in head over unit length of flow path.

HYDRAULIC GRADIENT - The change in static head per unit of distance in a given direction. If not specified, the direction is generally understood to be that of the maximum rate of decrease in head.

ICE-CONTACT DEPOSIT - Stratified drift deposited in contact with melting glacial ice.

INDUCED INFILTRATION - The process by which water in a stream or lake moves into an aquifer by establishing a hydraulic gradient from the surface-water body toward a pumping well or wells.

INDUCED-RECHARGE - The amount of water entering an aquifer from an adjacent surface-water body by the process of induced infiltration.

KAMES - A mount or hummack composed usually of poorly assorted water-laid materials in intimate contact with an ice surface. However, they may be formed by slumping subsequent to melting.

KAME TERRACE - Fillings or partial fillings of depressions between a glacier and the sides of its trough.

MEAN (ARITHMETIC) - The sum of the individual values of a set, divided by their total number. Also referred to as the "average."

METAMORPHIC ROCK - Any rock derived from preexisting rocks by mineralogical, chemical and structural changes, essentially in the solid state, in response to marked changes in temperature, pressure, shearing stress, and chemical environment at depth in the Earth's crust.

SAFE SUSTAINED YIELD - Amount of groundwater that can be withdrawn from an aquifer on a sustained basis economically and legally, without impairing the native groundwater quality or creating an undesirable effect such as environmental damage.

SATURATED ZONE - The subsurface zone in which all open spaces are filled with water. The water table is the upper limit of this zone.

SATURATED THICKNESS - Thickness of an aquifer below the water table.

SNOWMELT RUNOFF - Water draining from the snow pack.

SPECIFIC YIELD - The ratio of the volume of water which a saturated rock or soil will yield by gravity, to its own volume.

STORAGE COEFFICIENT - The volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head. In an unconfined aquifer, the storage coefficient is equal to the specific yield.

STRATIFIED DRIFT - A sorted sediment laid down in layers, by or in meltwater from a glacier; includes sand and gravel and minor amounts of silt and clay deposited in layers.

TILL - A nonsorted, nonstratified sediment deposited directly by a glacier and composed of boulders, gravel, sand, silt, and clay mixed in various proportions.

TRANSMISSIVITY - The rate at which water is transmitted through a unit width of an aquifer or confirming bed under a unit hydraulic gradient.

TRANSPIRATION - The process whereby plants release water vapor to the atmosphere.

UNCONFINED AQUIFER (Water-Table Aquifer) - One in which the upper surface of the saturated zone, the water table, is at stmospheric pressure and is free to rise and fall.

UNCONSOLIDATED - Loose, not firmly cemented or interloced; for example, sand in contrast to sandstone.

WATER BUDGET - An evaluation of all the sources of supply and the corresponding discharges with respect to an aquifer.

WATER SURPLUS - Water available for recharge.

WATER TABLE - The upper surface of the saturated zone.